

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025*****Fifth Semester******Electronics and Communication Engineering*****CEC368 - IOT Based Systems Design*****Regulations - 2021******Duration : 3 Hrs******Maximum : 100 Marks******PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)***

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Summarize the characteristics of IoT.	EV	1	2
2.	Illustrate the 3 layer IoT Reference model.	AP	1	2
3.	Define SCADA in the context of IoT.	RE	2	2
4.	What is the main application of MODBUS in IoT?	UN	2	2
5.	Analyze the use of ZigBee.	AN	3	2
6.	Distinguish IEEE 802.15.4g and IEEE 802.15.4e.	UN	3	2
7.	Mention the tools used for IoT development.	RE	4	2
8.	How Raspberry Pi is different from a desktop computer?	AN	4	2
9.	Describe the type of sensors used in IoT for pollution tracking.	RE	5	2
10.	List two applications of IoT in industrial automation.	RE	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Describe the seven layers of IoT Reference model designed by IoTWF.	UN	1	16
	Or			
	b i Explain in detail about Sensors, Actuators and Smart Objects.	AN	1	8
	ii Explain the Communication criteria and Access Technologies for connecting smart Objects.	AN	1	8
12.	a Analyze the middleware architecture and functionalities in RFID, WSN systems. How do middleware requirements vary across these IoT systems?	AN	2	16
	Or			
	b Analyze the challenges introduced by 5G in IoT middleware. Explain the COMPaaS approach and how it helps meet the technological requirements of 5G systems in IoT applications.	AN	2	16
13.	a Compare and contrast the physical and MAC layers of IoT Access Technologies with suitable illustrations.	AN	3	16

Or

	b	Discuss in detail about Application transport method: SCADA and Application layer protocol: MQTT.	UN	3	16
14.	a	Discuss the advantages of using Python in IoT development. Explain how Python libraries such as paho-mqtt, requests, and RPi.GPIO help to implement IoT functionalities. Explain with example, how each library can be applied.	AN	4	16
		Or			
	b	Explain how IoT can be implemented using Raspberry Pi. Discuss GPIO programming for sensor control, network connectivity for data transmission, and provide an example project, such as a home automation system using Raspberry Pi.	AN	4	16
15.	a	Prepare an IoT strategy for smart city and design the layered architecture for implementing smart cities.	UN	5	16
		Or			
	b	Discuss the applications of IoT in agriculture. Explain precision farming, soil monitoring, and automated irrigation systems, and discuss how IoT enhances crop yield and resource management with relevant examples.	UN	5	16