

Register No : _____

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

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.	Differentiate between Fog, Edge, and Cloud.	UN	1	2
2.	State some enabling technologies of IoT.	RE	1	2
3.	List the four pillars of IoT system.	RE	2	2
4.	Name the WSN middleware components.	RE	2	2
5.	How do constrained nodes differ from regular network devices in terms of their capabilities and resources?	AN	3	2
6.	Describe the purpose of the MAC header in an IP packet.	AN	3	2
7.	Write a python code to get weather information for openweathermap.org.	AP	4	2
8.	Write a python code to interface raspberry Pi with PIR sensor.	AP	4	2
9.	How can IoT solutions help address environmental challenges?	EV	5	2
10.	How is IoT transforming agriculture practices and improving crop yields?	EV	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Explain in detail about three layers of IoT architecture.	UN	1	13
	Or			
	b Explain the different levels of IoT deployment and various deployment templates.	UN	1	13
12.	a Discuss in detail about RFID Middleware and WSN middleware.	AN	2	13
	Or			
	b Discuss in detail about SCADA Middleware and M2M middleware.	AN	2	13

13.	a	Discuss in detail about IEEE 802.15.4 protocol design principles.	AN	3	13
Or					
	b	Compare the advantages and challenges of using power line communication for IoT connectivity versus wireless technologies like IEEE 802.15.4 and LoRaWAN.	AN	3	13
14.	a	Design a security surveillance system using cameras and the Telegram using Python code.	AP	4	13
Or					
	b	Setup a home weather monitoring station using the Raspberry Pi in Thingspeak IoT platform.	AP	4	13
15.	a	Explain in detail about smart home and List the implications for convenience, security, and energy efficiency.	UN	5	13
Or					
	b	Discuss in detail about smart grid and explain how it will lead to more sustainable and resilient energy systems.	UN	5	13

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Discuss the role of Middleware in IoT ecosystems and explain the various protocols involved in communication within IoT systems.	AN	2	15
Or					
	b	Explain the architecture of IoT systems, focusing on Fog, Edge, and Cloud computing. Analyze the benefits and trade-offs of each in terms of latency, security, and data processing.	AN	1	15