

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025***Fifth/Sixth Semester**Computer Science and Engineering***CS3691 – Embedded Systems and IOT****(Common Artificial Intelligence and Data Science & Information Technology)***Regulations - 2021***Duration : 3 Hrs****Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	Classify the types of addressing modes supported by the 8051.	L2	1	2
2.	How register banks are selected in 8051 microcontrollers?	L1	1	2
3.	List the memory devices used in the design of embedded systems.	L1	2	2
4.	Outline the need of RTOS.	L2	2	2
5.	How would you compare IoT devices and computers?	L2	3	2
6.	List the characteristics of IoT.	L1	3	2
7.	What is meant by VLR?	L1	4	2
8.	What is the need of piconet in a wireless application?	L2	4	2
9.	What is MQTT protocol?	L1	5	2
10.	Outline the use of signal conditioning unit.	L2	5	2

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

Q.No	Questions	BLT	CO	Marks
11.	a Design an architecture of 8051 microcontroller with complete functional units and also discuss its timer mode operation.	L2	1	16
	Or			
	b Discuss the various interrupt handling methods with clear sketch.	L2	1	16
12.	a Explore the concepts behind priority-based scheduling policies and also explain with suitable examples.	L3	2	16
	Or			
	b i Develop a program to control a 7-segment display using the 8051.	L3	2	8
	ii How would you design an LED interface for a real-time 8051 application?	L3	2	8

13.	a	Discuss the concept of IoT and its significance in modern technologies.	L2	3	16	
		Or				
	b	What is Arduino and why it is called open source hardware? Explain the features and types of Arduino versions.	L2	3	16	
14.	a	i	Sketch the protocol stack and working of Zigbee architecture with compete features.	L2	4	8
		ii	How the Rasberry Pi utilized a cloud platform for an image processing application?	L2	4	8
		Or				
	b	Sketch the GSM module with its architecture and discuss with relevant applications.	L2	4	16	
15.	a	Analyze the role and necessity of IOT in Healthcare with any one real time example.	L2	5	16	
		Or				
	b	What is a smart city? What are the characteristics of smart city? Explain briefly about the challenges of smart city implementation.	L2	5	16	