

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

Sixth Semester

Electronics and Communication Engineering

ET3491 - Embedded Systems and IOT Design

Regulations - 2021

Duration : 3 Hrs

Maximum : 100 Marks

PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	List the features of 8051 microcontrollers.	L1	1	2
2.	Show the status of the CY and AC flag after the addition of 38H and 2FH in the following instructions: MOV A, #38H ADD A, #2FH.	L3	1	2
3.	Draw the ARM core data flow model.	L1	2	2
4.	What is supervisor mode?	L1	2	2
5.	Compare Multiple Tasks and Multiple Processes.	L2	3	2
6.	Define MPSoC and its importance in real-time systems.	L1	3	2
7.	Why do IoT systems have to be self-adapting and self-configurable?	L1	4	2
8.	Identify the applications of M2M.	L1	4	2
9.	Give an example of a Python library used for IoT development.	L1	5	2
10.	What role does IoT play in agriculture?	L1	5	2

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

Q.No	Questions	BLT	CO	Marks
11.	a Draw the architectural block diagram of 8051 microcontroller and explain.	L2	1	16
	Or			
	b i Categorize the different addressing modes used in the 8051 microcontroller and provide examples for each mode.	L2	1	8
	ii Write an 8051 ALP to multiply the given number 48H and 30H.	L2	1	8
12.	a Using appropriate sketches, explain in detail how the ARM processor functions.	L2	2	16
	Or			
	b Explain the process of Assembly, Linking, and Loading in embedded system programming.	L2	2	16
13.	a i Provide an example of pre-emptive scheduling in a real-time system.	L3	3	8
	ii Identify the significance of task assignment and scheduling in real-time systems.	L3	3	8
	Or			
	b Design a task assignment and scheduling system for an audio player.	L3	3	16

14.	a	Analyze the impact of M2M communication on IoT system design.	L4	4	16
		Or			
	b i	Assess the role of MQTT in IoT communication.	L4	4	8
	ii	Analyze the IoT reference architecture and reference model in detail.	L4	4	8
15.	a	Using clear sketches, Identify the key components and functionalities of the Raspberry Pi board.	L3	5	16
		Or			
	b i	Design a simple IoT device using a microcontroller, sensor, and actuator.	L3	5	8
	ii	With an example, discuss about Programming of Raspberry Pi with Python.	L3	5	8