

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

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

Fifth Semester

Information Technology

CS3691 – Embedded Systems and IOT

(Common to Sixth Semester Artificial Intelligence and Data Science &
Computer Science and Engineering)

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.	Compare Microprocessor and Microcontroller.	L1	1	2
2.	Differentiate between maskable and non-maskable interrupts.	L2	1	2
3.	List the advantages and limitations of priority based process scheduling.	L2	2	2
4.	Define Multi-tasking.	L1	2	2
5.	What are the 4 protocols of IOT?	L1	3	2
6.	Mention the types of Arduino Shields.	L1	3	2
7.	Define NFC.	L1	4	2
8.	What is a Raspberry Pi?	L1	4	2
9.	What are the challenges in Embedded System Design?	L1	5	2
10.	Give the role of Industrial Automation with respect to industry 4.0 context.	L2	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 With neat block diagram, Explain the architecture of 8051 microcontroller.	L2	1	16
	Or			
	b i For microcontroller, how RAM is organized and addressed?	L2	1	8
	ii How many register banks are present in RAM and how is bank switching executed?	L2	1	8
12.	a Explain in detail about I/O devices, Timers, Counters and Watchdog Timers.	L2	2	16
	Or			
	b i List the priority-based scheduling policies. Explain anyone in detail with example.	L2	2	8
	ii Write short notes about programming embedded systems in C.	L2	2	8

13.	a	Analyze about the technical building blocks and communication technologies of IOT and how far it is different from desktop computers.	L4	3	16
	Or				
	b	Analyze the sensor nodes and its interfacing using embedded target boards of Arduino.	L4	3	16
14.	a	Compare the IOT communication protocols in terms of performance for Bluetooth and ZigBee modulus.	L4	4	16
	Or				
	b i	Raspberry Pi is better than computer for implementation of embedded application. Justify?	L4	4	8
	ii	How signals are transmitted using GPIO? Analyze the different faults that can be troubleshooted at I/O pins.	L4	4	8
15.	a	Explain the complete design of Embedded Systems.	L3	5	16
	Or				
	b	With relevant diagram, implement Smart Healthcare system in a primary healthcare setup.	L3	5	16