

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Seventh Semester**Mechanical Engineering***ME3791- Mechatronics and IOT***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>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	How do brushless permanent magnet DC motors differ from traditional brushed DC motors in terms of their construction and operation?	L2	1	2
2.	Interpret the need for Mechatronics.	L2	1	2
3.	How does an Inverting Amplifier differ from a Non-Inverting Amplifier?	L2	2	2
4.	Mention the types of programming language for PLC.	L1	2	2
5.	What are the three layers of IoT architecture?	L1	3	2
6.	Summarize the role of a peripheral in an embedded system.	L2	3	2
7.	Why is python preferred for Raspberry Pi development?	L2	4	2
8.	What is the primary use of the ESP8266 module?	L1	4	2
9.	Mention the purpose of an electronic ignition system in a vehicle.	L1	5	2
10.	What is Adaptive Cruise Control (ACC)?	L1	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 Explain the static and dynamic characteristics of sensors and transducers.	L2	1	16
	Or			
	b i Describe the working principle of ultrasonic sensors and their applications in object detection and distance measurement.	L2	1	8
	ii Explain the working principle of a piezoelectric sensor and its applications in Mechatronics.	L2	1	8
12.	a Explain the construction and working of a Wheatstone bridge amplifier and illustrate how they help in force measurement.	L2	2	16
	Or			
	b Draw and explain the architecture of PLC and describing the function of each components.	L2	2	16
13.	a Explain about various IoT enabling Technologies.	L2	3	16
	Or			
	b Illustrate the use of various peripherals used in an Embedded System with application for each of them.	L2	3	16

14.	a	Compare the architecture of an Arduino Uno and a Raspberry Pi.	L3	4	16
		Or			
	b	Illustrate how to interface a LED to raspberry pi and write a program to blink LED.	L3	4	16
15.	a	What are the key components of a drone control system? Explain the role of actuators in drone actuation and control systems.	L2	5	16
		Or			
	b	Explore the technological advancements and principles behind Anti-lock Braking System (ABS) and Electronic Brake-force Distribution (EBD).	L2	5	16