

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026****Seventh Semester****Electronics and Communication Engineering****OMR351 - MECHATRONICS****Regulations - 2021****Duration: 3 Hrs.****Maximum : 100
Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BTL	CO	Marks
1.	Define mechatronics and sketch the graphical representation of mechatronics systems.	L1	1	2
2.	Write about the bimetallic strips.	L2	1	2
3.	What is function of accumulator?	L1	2	2
4.	Classify the types of addressing modes of 8085.	L2	2	2
5.	What is the typical use of PPI?	L1	3	2
6.	What are the ADC and DAC specifications?	L2	3	2
7.	Tell the use of JUMP control in PLCs.	L1	4	2
8.	What are the criteria needs for the selection of a PLC?	L1	4	2
9.	Write down the applications of stepper motors.	L1	5	2
10.	How does engine timing controlled in the mechatronics system?	L2	5	2

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

Q.No	Questions	BLT	CO	Marks
11. a	i Explain in detail the concepts of Mechatronics approach with a neat diagram.	L2	1	10
	ii Mention the need for mechatronics system.	L2	1	6
Or				
b	Explain the construction and working principle of Linear Variable Differential Transducer and describe its performance characteristics.	L2	1	16
12. a	Apply the architecture of the 8085 microprocessor to explain how it executes the instruction MOV A, B. Highlight the role of various components during execution.	L3	2	16
Or				
b	Using the architecture of the 8085 microprocessor, construct the timing diagrams for both memory read and memory write cycles. Explain the sequence of signals and the role of each component during these operations.	L3	2	16
13. a	Interface a 4-digit seven segment display with 8255 and write an ALP to display rotating '2025'.	L3	3	16
Or				
b	How do you interface a stepper motor to a controller? Give the necessary hardware and software functional blocks.	L3	3	16
14. a	Explain the architecture of PLC with neat sketch.	L2	4	16
Or				
b	Explain the ladder diagram for various logic functions.	L2	4	16

15.	a	Analyze the construction and working principle of a servo motor. Explain how each component contributes to its operation and evaluate its advantages and disadvantages.	L4	5	16
Or					
	b	Analyze the components and working of a pick and place robot built using mechatronics elements. Explain how each part contributes to the overall operation.	L4	5	16