



**DIPLOMA IN MECHATRONICS**

**CENTRALIZED QUESTION BANK**

**1047234320 - EMBEDDED PROGRAMMING**

**DIRECTORATE OF TECHNICAL  
EDUCATION GOVERNMENT OF  
TAMILNADU**

## **DIPLOMA END SEMESTER / YEAR EXAMINATION – 2025**

**Course:** Mechatronics

**Subject :** Embedded Programming

**QP Code :** 1047234320

**Time :** 3 Hours

**Date :**

**Session:**

**Max Marks:** 100

### **Answer the following Questions**

1. Identify the pins of 8051 and AVR micro controllers.
2. Identify the pins and features of PIC micro controllers
3. Identify the features of ARM microcontroller on the basis of IC number.
4. Use Integrated development environment tool for developing embedded 'C' Programs (Using Micro Pro C / Keil ).
5. Execute the 'C' program to perform following arithmetic operations on 8-bit data : addition , subtraction , multiplication and division.
6. Develop and test the C program to following arithmetic operations on 8 bit data : addition , subtraction , multiplication and division
7. Develop and Test the 'C' program to perform data transfer from source to destination (Use internal data memory locations).
8. Interface RS 232 connector to PC using MAX232IC.
9. Develop and test the 'C' program to turn on LED (S) with key (S) press.
10. Interface 89C51/AYR micro controller and write the 'C' program to display Numbers from 0 to 9 on 7-segment display with specified delay.
11. Interface 89C51/AYR micro controller and write C program to display string On given 16x2 LCD.
12. Interface 89C51/AYR microcontroller and write 'C' language program to read Key code from 4x4 matrix key board and LCD display.
13. Interface 89C51 I A VR micro controller and write C program to convert analog signal into digital form using given 8 bit ADC and store the Converted digital data in memory.

- 14 Interface saw tooth 89C51 and write C program to generate square and wave forms using given 8 bit DAC. 89C51 and write C program to generate Square and wave forms using given 8 bit DAC.
- 15 89C51I AVR microcontroller and write C program to rotate stepper motor With different speeds in clockwise and counter clockwise direction
- 16 Interface 89C51 and write C program to observe the real time status of the triangular wave form generated using DAC (Use any IDE tool).

### **Allocation of Marks**

<b>Sl. No</b>	<b>Description</b>	<b>Marks</b>
1	Aim & Program	40
2	Execution and result	20
3	Written test (Theory portions)	30
4	Vivo voce	10
<b>Total</b>		<b>100</b>