



**DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING**

**CENTRALIZED QUESTION BANK**

**1030234340 - MICROCONTROLLER AND  
EMBEDDED SYSTEMS**

**DIRECTORATE OF TECHNICAL  
EDUCATION GOVERNMENT OF  
TAMILNADU**

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

**Course:** Electrical and Electronics Engineering

**Subject :** Microcontroller and Embedded Systems

**QP Code :** 1030234340

**Time :** 3 Hours

**Date :**

**Session:**

**Max Marks:** 100

### **Answer the following Questions**

- 1 Write an Assembly Language Program for 16-bit addition and execute the same in the 8051 microcontroller kit.
- 2 Write an Assembly Language Program for 16-bit subtraction and execute the same in the 8051 microcontroller kit.
- 3 Write an Assembly Language Program for 8 bit multiplication and execute the same in the 8051 microcontroller Kit.
- 4 Write an Assembly Language Program for 8 bit division and execute the same in the 8051 microcontroller Kit.
- 5 Write and execute an Assembly Language Program for blinking LED with a time delay using time delay subroutine.
- 6 Write and execute an Assembly Language Program for transferring the status of input switches to the output LEDs after the counter counting 5 number of pulses by using Counter 0 in Mode 1.
- 7 Interface a 4x4 matrix keypad with the 8051 microcontroller. Write an Assembly Language Program to detect key presses and display the pressed key on an LCD.
- 8 Interface a seven-segment LED display with the 8051 microcontroller. Write an Assembly Language Program to display digits from 0 to 9.
- 9 Interface a stepper motor with the 8051 microcontroller. Write an Assembly Language Program to rotate the motor in both clockwise and counterclockwise directions with a specified delay.
- 10 Interface a DC motor with the 8051 microcontroller. Write an Assembly Language Program to control a DC motor's speed.
- 11 Interface an ADC with the 8051 microcontroller. Write an Assembly Language Program to convert an analog voltage input and display the digital equivalent on an LCD.
- 12 Write an Assembly Language Program to generate a PWM signal using the 8051 microcontroller. Execute the program and verify the waveform using an oscilloscope.

### **Allocation of Marks**

<b>Sl. No</b>	<b>Description</b>	<b>Marks</b>
1	Aim & Apparatus Required	05
2	Algorithm or Flow Chart	20
3	Program	20
4	Execution and Output/Result	25
5	MCQ from Theory Portions	20
6	Viva Voce	10
	<b>Total</b>	<b>100</b>