

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL - 2025**

MICROCONTROLLER AND APPLICATIONS

[Maximum marks: 75]

[Time: 3 Hours]

PART A

I. Answer all the following questions in one word or one sentence. Each question carries 1 mark

(9 x 1 = 9 Marks)

		Module outcome	Cognitive level
1	State the size of internal RAM and ROM in 8051	M1.02	R
2	The two 16-bit registers in 8051 are.....and.....	M1.02	R
3	MOV @RI, 80H instruction is an example for.....addressing mode.	M2.02	U
4	Define machine cycle.	M2.03	R
5	The instruction which is used to return from Interrupt Service Routine is.....	M3.01	R
6	State the name of register in which TR0 and TR1 flags are available.	M3.03	R
7	Define baud rate.	M3.04	R
8	List any two advantages of LCD.	M4.03	R
9	In LM35,.....is linearly proportional to the Celsius temperature.	M4.04	R

PART B

II. Answer any eight questions from the following. Each question carries 3 marks.

(8 x 3 = 24 Marks)

		Module outcome	Cognitive level
1	List the features of 8051 microcontroller.	M1.02	R
2	Discuss register banks in 8051.	M1.04	U
3	Distinguish the functions of program counter and data pointer.	M1.03	U
4	Write an assembly language program to read a byte of data from PORT2 and send it to PORT1.	M2.04	A
5	Discuss the MOV, MOVC and MOVX instructions.	M2.02	U
6	Describe interrupt vector table for 8051.	M3.01	U

7	Outline the format of timer 0 register and timer 1 register.	M3.02	R
8	Describe time delay calculation for timers in 8051.	M3.03	U
9	Discuss the function of SBUF register.	M3.04	U
10	Explain the bidirectional control of DC motor.	M4.02	U

PART C

Answer all questions. Each question carries seven marks

(6 x 7 = 42 Marks)

		Module outcome	Cognitive level
III	Discuss the program memory organization of 8051 microcontroller.	M1.04	U
	OR		
IV	Distinguish general features of microprocessor and microcontroller.	M1.01	U
V	Discuss rotate instructions of 8051.	M2.02	U
	OR		
VI	Describe jump instructions of 8051.	M2.03	U
VII	Write an assembly language program to convert a hexadecimal number to BCD number.	M2.04	A
	OR		
VIII	Write an assembly language program to add two 16-bit numbers.	M2.04	A
IX	Discuss interrupt priority and IP register.	M3.01	U
	OR		
X	Discuss timer operating modes in 8051.	M3.02	U
XI	Discuss the working of stepper motor.	M4.01	U
	OR		
XII	Explain DAC interfacing with 8051.	M4.04	U
XIII	Describe the interfacing of 16X2 LCD system with 8051.	M4.03	U
	OR		
XIV	Discuss the interfacing of LM35 with 8051.	M4.04	U
