TED (21) - 4082
(REVISION-2021)

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Reg.No……
Signature…….

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 2024

MICROCONTROLLER PROGRAMMING 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 'one' marks.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1	Name the 16-bit registers of 8051.	M1.04	R
2	Write the expansion of ALE.	M1.01	R
3	Define an interrupt in 8051.	M2.02	U
4	List the power saving modes of 8051.	M2.05	R
5	The contents of accumulator after executing the below instructions: MOV A,#0AH ANL A, #06H	M3.02	A
6	Write an example of indexed addressing mode in 8051.	M3.01	U
7	Write an example of an unconditional jump instruction in 8051.	M3.02	U
8	Define an optoisolator.	M4.06	U
9	Write the LCD command to clear the display.	M4.01	R

PART - B

II. Answer *any eight* questions from the following. Each question carries 'Three' marks.

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1	Write the functions of pins: RXD, TXD and $\overline{PSEN}$	M1.01	U
2	Write the use of program counter in 8051 and give its internal address.	M1.04	U

3	Write a short note on priority of interrupts in 8051.	M2.02	U
4	Draw the TMOD register and describe the counter operation of 8051.	M2.01	U
5	Describe stack in 8051.	M2.03	U
6	Comment on the following instructions: (i) MOV A, 40H (ii) MOV R4,#05H (iii) MOV R3,R0	M3.02	U
7	With examples, describe any two rotate instructions of 8051.	M3.02	U
8	Write 8051 instructions to: (i) Copy the value 05H to R0 register (ii) Copy the value in R0 register to R3 register (iii) Exchange the values of accumulator and R3 register	M3.02	A
9	Draw the interfacing diagram of LM35 with 8051.	M4.04	U
10	Draw the interfacing diagram of 4 x 4 keyboard with 8051.	M4.02	U

PART - C

Answer all the questions from the following. Each question carries 'seven' marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	Write the features of 8051.	M1.01	U
	OR		
IV.	With a diagram, describe PSW of 8051	M1.04	U
V.	Describe the dual functions of port 3 of 8051.	M1.01	U
	OR		
VI.	Describe SCON and SBUF registers of 8051.	M1.04	U
VII.	Describe the mode 2 and mode 3 operation of timer.	M2.01	U
	OR		
VIII.	Write the steps in programming 8051 to transmit data serially.	M2.04	U
IX.	Write an ALP to multiply two numbers present in 8000H and 8001H and store the results in 8002H and 8003H	M3.03	A
	OR		
X.	Write an ALP to perform 2's complement on the value in R3 register of Register Bank 0.	M3.03	A
XI.	Describe the arithmetic instructions of 8051.	M3.02	U
	OR		
XII.	With examples, explain direct and indirect addressing modes of 8051.	M3.01	U
XIII.	With necessary diagram, explain the interfacing of ADC with 8051.	M4.03	U
	OR		
XIV.	With necessary diagram, explain the interfacing of Stepper Motor with 8051.	M4.07	U

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