PRN:		Course Code:	ELE2504

Third Year **B. Tech** End Semester Examination Winter 2023

Microcontroller & IoT

Day and Date: Wednesday, 06/12/2023 Max Marks: **100**

Time: 10.30 am to 1.30 PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Explain the use of following pins of 8051 1. /PSEN 2. /EA 3. ALE 4. RST	08	L3	CLO2
	b)	Elaborate the block diagram of 8051 in detail.	08	L4	CLO1
		OR			
	b)	Explain the RAM memory organization in 8051	08	L4	CLO1
Q.2		**Attempt the following**			
	a)	Explain the following instructions with 1. MOVX A, @DPTR 2. MOVC A, @A+DPTR 3. RL A 4. PUSH 01H	08	L3	CLO3
	b)	Explain the modes of serial communication and SCON SFR in detail.	08	L2	CLO1
		OR			
	b)	Elaborate the TMOD and TCON SFR's of timer in 8051	08	L2	CLO1
Q.3		**Attempt any two from the following**			
	a)	Write a program to find the checksum of 10 numbers stored from ROM memory location 20H.	08	L4	CLO2
	b)	Write program to shift block of 05 bytes starting from source address location 60H to destination address location starting from 63H.	08	L4	CLO2
	c)	Write a program to find the number of 0s in an 8-bit number stored at memory location 30H in internal RAM	08	L4	CLO3
Q.4		**Attempt any two from the following**			
	a)	Draw the interfacing diagram of LCD to 8051 in 8-bit mode. Give merits and demerits of 4 bit and 8-bit modes of LCD	08	L5	CLO3
	b)	Draw and explain the interfacing of stepper motor with 8051.	08	L5	CLO3
	c)	Interface 16KB RAM to 8051 with starting address as B000H also find the final address.	08	L5	CLO3
Q.5		**Attempt any Two of the following**			
	a)	Explain the applications of IoT for environment	09	L2	CLO3
	b)	Highlight the application of IoT in home automation.	09	L2	CLO2
	c)	Comment on the use of IoT in smart cities	09	L2	CLO2
Q.6		**Attempt any Two of the following**			
	a)	Write a program to blink LED connected to pin 8 of Arduino Uno board.	09	L3	CLO4
	b)	Illustrate with example the I/O commands for Arduino Uno	09	L3	CLO4
	c)	List and explain the features and pins of Arduino Uno	09	L3	CLO4

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