PRN:		Course Code :	ELE2504

Third Year **B. Tech** End Semester Examination **(Backlog)** Summer 2023

Microcontroller &IoT

Day and Date: Monday, 19/06/2023 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)	List the key features of microcontroller 8051.	08	L1	CO1
	b)	Draw and explain pin out diagram of 8051.	08	L2	CO1
		OR			
	b)	Draw and explain the architecture of MCS-8051.	08	L2	CO1
Q.2		**Attempt the following**			
	a)	Draw and explain RAM memory organization of 8051.	08	L2	CO1
	b)	Explain the use of each SFR (special function register).	08	L2	CO1
		OR			
	b)	Explain Program Status Word (PSW) register in detail.	08	L2	CO1
Q.3		**Attempt any two from the following**			
	a)	Describe register and immediate addressing modes with example.	08	L2	CO2
	b)	Describe direct and indirect addressing modes in detail.	08	L2	CO2
	c)	Explain the following instructions in detail: ❖ ANLC,/P1.1 ❖ MOVCA,@A+DPTR ❖ CLR C ❖ SUBB A,B	08	L3	CO2
Q.4		**Attempt any two from the following**			
	a)	Write a short note on PUSH and POP instruction.	08	L3	CO2
	b)	State and explain the types of branch instructions.	08	L3	CO2
	c)	Explain CALL and RET instruction in detail.	08	L3	CO2

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Q.5	**Attempt any Two of the following**			
a)	Write and explain an assembly language program for block transfer.	09	L4	CO3
b)	Write and explain an assembly language program for 8 bit multiplication & division of two 8 bit numbers.	09	L4	CO3
c)	Write and explain an assembly language program for 8 bit addition and 8 bit subtraction of two numbers.	09	L4	CO3
Q.6	**Attempt any Two of the following**			
a)	Define IoT and explain the block diagram of IoT device.	09	L3	CO4
b)	Draw and explain IoT protocols in detail.	09	L3	CO4
c)	Explain the application of IoT system in following sectors: ❖ Agriculture ❖ Logistics ❖ Home automation ❖ Environment	09	L3	CO4

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