Reg. No.

B. E / B. TECH. DEGREE EXAMINATIONS, MAY 2023
Fifth Semester
EE18503 – MICROPROCESSORS AND MICROCONTROLLERS
(Electrical and Electronics Engineering)
(Regulation 2018)

TIME: 3 HOURS   **MAX. MARKS: 100**

CO1	Acquire knowledge on the architecture and instruction sets of 8085 microprocessor
CO2	Programming of 8085 microprocessor.
CO3	Acquire knowledge on the architecture and instruction set of 8051 microcontroller.
CO4	Programming of 8051 microcontroller and comprehend the applications of 8051 microcontroller.
CO5	Acquire knowledge on the architecture, instruction set and programming of ARM microcontroller

PART- A (10x2=20Marks)
(Answer all Questions)

		CO	RBT LEVEL
1.	Specify the size of data address, memory word and memory capacity of 8085 microprocessor.	1	2
2.	What is trap interrupt and its significance?	1	2
3.	MOV A, B is an example of which addressing mode ?	2	2
4.	How is PUSH B instruction executed? Find the status after execution.	2	3
5.	What are the main features of 8051 microcontroller ?	3	1
6.	What is the program status word of 8051?	3	1
7.	List the on-chip peripherals of 8051.	4	1
8.	What is the operation of the given 8051 microcontroller instructions: XRL A, direct?	4	2
9.	What are the three main families of ARM microcontrollers?	5	1
10.	What are the five basic stages involved in the execution of an ARM instruction?	5	1

PART- B (5x 14=70Marks)

			Marks	CO	RBT LEVEL
11. (a)		Explain with neat block diagram the architecture of 8085 microprocessor.	(14)	1	3
		(OR)			
(b)	(i)	Describe different types of interrupts used in 8085 microprocessor.	(7)	1	3
	(ii)	Draw the timing diagram of IN and OUT instructions used in 8085.	(7)	1	3

12. (a)	Write an assembly language program for 8085 microprocessors to find the sum of given series1 +22 + 32 + 42 + …… + n2.	(14)	2	4

(OR)

(b)	Write an ALP for 8085 microprocessor to find the sum of ODD numbers and even numbers separately from the given array of n numbers starting from memory address 4550.	(14)	2	4

13. (a)	Discuss about the organization of internal RAM and special function registers of 8051microcontroller in detail.	(14)	3	2

(OR)

(b)	(i)	Explain port structure of 8051 microcontroller and draw its pin diagram.	(7)	3	3
	(ii)	Explain the interrupt structure with associated registers in 8051 microcontroller.	(7)	3	3

14. (a)	Design the system and develop a program for washing machine control using 8051 microcontroller.	(14)	4	4

(OR)

(b)	Design the system and develop a program for Temperature monitoring and control using 8051 microcontroller.	(14)	4	4

15. (a)	Explain with a neat diagram the architecture of ARM micro controller.	(14)	5	2

(OR)

(b)	(i)	Describe the thumb and normal instruction set of ARM processor. How do you switch from one to another?	(7)	5	3
	(ii)	Explain ARM pipeline with 3,5,6 stages.	(7)	5	3

PART- C (1x 10=10Marks)
(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Develop a program to rotate stepper motor 4 steps in clockwise direction and 4 steps in anticlockwise with a delay of 500µs using microcontroller	(10)	4	5

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