Q. Code:427695

Reg. No. | | | | | | | | | | | | | |

B.E./ B.TECH. DEGREE EXAMINATIONS, MAY 2024

Fifth -Semester

EE18503 – MICROPROCESSORS AND MICROCONTROLLERS

(Electrical and Electronics Engineering)

(Regulation 2018/ 2018A)

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

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Acquire knowledge on the architecture and instruction sets of 8085 microprocessor.	**3**
CO 2	Programming of 8085 microprocessor.	**4**
CO 3	Acquire knowledge on the architecture and instruction set of 8051microcontroller.	**3**
CO 4	Programming of 8051 microcontroller and comprehend the applications of 8051 microcontroller.	**4**
CO 5	Acquire knowledge on the architecture, instruction set and programming of ARM microcontroller.	**3**

PART- A(10x2=20Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Discuss the need to Demultiplex the bus AD0 – AD7. How many demultiplexing is done?	**1**	**2**
2.	What is the function of Stack pointer?	**1**	**2**
3.	List the addressing modes of 8085 microprocessor.	**2**	**2**
4.	State the difference between RET and RETI.	**2**	**3**
5.	What steps are followed when we need to turn on 16-timer in 8051 microcontroller?	**3**	**3**
6.	Specify the bit addressable locations of RAM in 8051 microcontroller.	**3**	**1**
7.	List the applications of 8051 microcontroller.	**4**	**2**
8.	Compare CISC and RISC microcontrollers.	**4**	**3**
9.	How many operating modes does ARM controller have?	**5**	**1**
10.	Write about the concept of pipelining in ARM controllers.	**5**	**2**

PART- B (5x 14=70Marks)

		Marks	CO	RBT LEVEL
11. (a)	Elaborate on the memory organization of the 8085 microprocessor, specifically focusing on the allocation of memory space for two separate ROM modules spanning addresses 2000 to 2FFF and 3000 to 3FFF KB, as well as distinct RAM section occupying addresses 8000 to 8FFF KB? Furthermore, how does this memory arrangement impact the data flow and	**(14)**	**1**	**3**

program execution within the microprocessor system?

(OR)

	(b)	Draw the timing diagram for the instructions. (i) STA 4150, (ii) INR M	**(14)**	**1**	**3**
12.	**(a)**	Write an 8085 ALP program to sort the numbers in ascending order. Assume that the data are available in memory location.	**(14)**	**2**	**3**
		(OR)			
	(b)	Edison went to a hardware shop to purchase a 5 keyboards, 6 pen drive and 4 RAM processors. Write a assembly language program in 8085 microprocessor to calculate the total amount spent for the items purchased. Use the memory address 7540, 7541 and 7542 for getting the input amount and 7543, 7544 for storing the total amount.	**(10)**	**2**	**3**
13.	**(a)**	Discuss about the organization of Internal RAM and Special function registers of 8051 micro controller in detail. Explain the steps that are taken to initialize Port A as input port and Port B as output port.	**(14)**	**3**	**3**
		(OR)			
	(b)	Compare a microcontroller with microprocessor and explain the architecture of 8051 microcontroller with a neat diagram	**(14)**	**3**	**3**
14.	**(a)**	Interface a LM35C temperature sensor to the 8051 microcontroller through an analog to digital converter and outline the steps to be followed to get data from analog input of ADC into the microcontroller.	**(14)**	**4**	**3**
		(OR)			
	(b)	Draw and explain the pin diagram of LCD display. Write a suitable program to display "WELCOME TO" in the first row and "WORLD OF ROBOTICS" in the second row, also support the answer with interfacing diagram.	**(14)**	**4**	**3**
15.	**(a)**	With a functional block diagram, briefly explain the architecture of ARM microcontroller.	**(14)**	**5**	**2**
		(OR)			
	(b)	Discuss the instruction sets of ARM microcontroller.	**(14)**	**5**	**2**

PART- C (1x 10=10Marks)

(Q.No.16 is compulsory)

			Marks	CO	RBT LEVEL
16.		A motor is connected to a machine to wash clothes; it is programmed to using 8051 microcontroller. Identify the motor and describe with a neat diagram about the entire process of washing clothes. Consider the sensors incorporated and explain the entire process with block diagram.	**(10)**	**4**	**4**

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