Code No: R2032041 **R20** SET -1

III B. Tech II Semester Regular Examinations, July -2023
MICRO PROCESSORS AND MICRO CONTROLLERS
(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	Draw the minimum mode pin diagram and explain the function of each pin in detail.	[7M]
	b)	Draw the timing diagrams of minimum mode write operation and explain in detail.	[7M]
		(OR)	
2.	a)	Draw the 8086 microprocessor internal architecture and explain the operation of each block.	[7M]
	b)	List out few comparisons of RISC and CISC processor.	[7M]

UNIT-II

3.	a)	Define addressing mode and explain different addressing modes presented in 8086 microprocessor.	[7M]
	b)	Write an Assemble language program to find the sum of squares of first ten numbers.	[7M]
		(OR)	
4.	a)	Write an Assemble language program to find number of even and odd numbers in an 8- Bit array.	[7M]
	b)	Explain the following instructions (i) XCHG (ii) PUSH (iii) CMP (iv) DAA	[7M]

UNIT-III

5.	a)	With a neat diagram explain the architecture of 8255?	[7M]
	b)	Draw and explain the interfacing of seven segment display with 8086 microprocessor.	[7M]
		(OR)	
6.		Draw the internal architecture of USART 8251 and explain its different status and modes and control formats neatly	[14M]

UNIT-IV

7.	a)	Discuss about memory organization of 8051 microcontroller?	[7M]
	b)	What is the purpose of using I/O ports of 8051? Classify and explain them in detail?	[7M]
		(OR)	
8.	a)	Write the salient features of 8051 family of microcontroller.	[7M]
	b)	Write short notes on Traffic light controls interfacing with 8051.	[7M]

UNIT-V

9.	a)	Explain in detail about ARM vs thumb programming model?	[7M]
	b)	Explain the Stack and Stack pointer of a ARM processor in detail.	[7M]
		(OR)	
10.		Draw and explain the functional description and NVIC programmers' model in detail.	[14M]

Code No: R2032041 **R20** SET -2

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MICRO PROCESSORS AND MICRO CONTROLLERS
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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	What are the different segments registers in 8086? Why need memory segmentation?	[7M]
	b)	What is the length of the instruction Queue in 8086? Discuss the use of the queue. Explain the reason for limiting the length of the queue.	[7M]
		(OR)	
2.	a)	Draw and explain the internal architecture of 8086 processor.	[7M]
	b)	Give the difference between minimum mode and maximum mode of operation in 8086 microprocessor?	[7M]

UNIT-II

3.	a)	Define assembler and explain the different assembler directives used in 8086 microprocessor.	[7M]
	b)	Explain the programming development steps in 8086 microprocessor.	[7M]
		(OR)	
4.	a)	Explain the following instructions (i) AAS (ii) DIV (iii) CALL (iv) RET	[7M]
	b)	Develop an 8086 assembly language program to arrange the numbers in ascending order.	[7M]

UNIT-III

5.	a)	Draw the internal block diagram of 8259 PIC and explain its operation.	[7M]
	b)	Explain the ICW's and OCW's of 8259 PIC.	[7M]
		(OR)	
6.	a)	What is the advantage of DMA controlled data transfer over interrupt driven or program controlled data transfer? Why are DMA controlled data transfers faster?	[7M]
	b)	Explain memory mapped I/O and I/O mapped I/O.	[7M]

UNIT-IV

7.	a)	Discuss about the priority of the interrupts in 8051. And state for which interrupt highest priority is given?	[7M]
	b)	Describe the serial port operation in 8051 microcontroller?	[7M]
		(OR)	
8.	a)	Explain various modes of operation of timer /counters in 8051?	[7M]
	b)	Write short note son A/D convertor interfacing with 8051.	[7M]

UNIT-V

9.		Draw the internal architecture of ARM controller and explain its operation.	[14M]
		(OR)	
10.	a)	Explain the Programmers Models of ARM processor in detail.	[7M]
	b)	Write short notes on Nested Vectored Interrupt Controller in detail.	[7M]

Code No: R2032041 **R20** SET -3

III B. Tech II Semester Regular Examinations, July -2023
MICRO PROCESSORS AND MICRO CONTROLLERS
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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	Describe the memory segmentation and instruction queue?	[7M]
	b)	Briefly explain register organization in 8086 microprocessor.	[7M]
		(OR)	
2.	a)	Give the difference between maskable and non-maskable interrupts?	[7M]
	b)	List out few compassions of Microprocessor and microcontroller.	[7M]
		UNIT-II	
3.	a)	What are assembler directives? Explain any three assembler directives.	[7M]
	b)	Write an assembly language program to generate fibonacci series up to a given number.	[7M]
		(OR)	
4.	a)	Develop an assembly language program to find the sum of numbers from 1 to 100.	[7M]
	b)	List out assembler directives of 8086 and explain them briefly?	[7M]
		UNIT-III	
5.	a)	Draw a typical stepper motor interface with 8255 and explain?	[7M]
	b)	Draw and explain the interfacing of 8259 with 8086?	[7M]
		(OR)	
6.	a)	Interfacing of a two 4X4 PROM and two 8X4 RAM with 8086 CPU, draw the memory map and interfacing diagram for it, the RAM address follows the ROM address.	[7M]
	b)	Explain the methods of serial communications with examples.	[7M]
		UNIT-IV	
7.	a)	Draw the pin diagram of 8051 microcontroller and explain the function of each pin in detail.	[7M]
	b)	List out different futures of 8051 Microcontroller.	[7M]
		(OR)	
8.	a)	Draw the LCD Interfacing with 8051 microcontroller and explain its operation.	[7M]
	b)	Explain the internal and external interrupts in 8051.	[7M]
		UNIT-V	
9.	a)	Draw the block diagram of ARM Cortex-M processor and explain its operation.	[7M]
	b)	List out different applications of ARM processor.	[7M]
		(OR)	
10.	a)	Explain the different Thumb programming model of ARM controller with examples.	[7M]
	b)	Write short notes on subroutines in ARM processor.	[7M]

Code No: R2032041 **R20** SET -4

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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	Explain the different minimum mode pins of 8086 microprocessor.	[7M]
	b)	List different registers of 8086 microprocessor and explain.	[7M]
		(OR)	
2.	a)	Draw the maximum mode pin diagram of 8086 microprocessor and explain each pin in detail.	[7M]
	b)	Draw the timing diagrams of minimum mode read operation and explain in detail.	[7M]

UNIT-II

3.	a)	Explain in detail various addressing modes of 8086 microprocessor with necessary examples.	[7M]
	b)	Write an ALP in 8086 to exchange a block of N bytes of data between source and destination?	[7M]
		(OR)	
4.	a)	Explain the stack structure of 8086 in detail with a sketch.	[7M]
	b)	Explain while loop and repeat-until structures with an example.	[7M]

UNIT-III

5.	a)	Draw the Internal diagram of 8237 DMA and explain its operation.	[7M]
	b)	Differentiate between BSR and I/O modes of 8255 PPI.	[7M]
		(OR)	
6.	a)	Draw the 8251 USART architecture and explain the operation of each block in it.	[7M]
	b)	Draw and explain the interfacing of analog to digital converter with 8086 microprocessor.	[7M]

UNIT-IV

7.	a)	Draw the 8051 Microcontroller architecture and explain its operation in detail.	[7M]
	b)	Explain the timer and counter operations of 8051 Microcontroller.	[7M]
		(OR)	
8.		Write short notes on (a) PSW (b) SCON (c) PCON	[5+5+4 M]

UNIT-V

9.	a)	Draw the architecture of ARM controller and explain the operation of each block in it.	[7M]
	b)	Write short notes on ARM Processors Families in detail.	[7M]
		(OR)	
10.	a)	Explain the Programmers Models of ARM processor in detail.	[7M]
	b)	Write short notes on Nested Vectored Interrupt Controller in detail.	[7M]