Code No: RT32041 **R13** SET - 1

III B. Tech II Semester Regular/Supplementary Examinations, April - 2018

MICRO PROCESSORS AND MICRO CONTROLLERS

(Common to Electronics and Communication Engineering, Electronics and Instrumentation Engineering Electronics and Computer Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Define flag register.	[3M]
	b)	What is meant by end of program?	[3M]
	c)	Difference between static and dynamic RAM.	[4M]
	d)	State the function of bit scan instructions.	[4M]
	e)	Define single chip microcomputer.	[4M]
	f)	What is ARM?	[4M]

PART -B

2	a)	Draw the block diagram of 8086 and explain BIU and EU	[8M]
	b)	Explain various instruction formats with examples?	[8M]
3	a)	Develop an assembly language program to find the sum of numbers from 1 to 100.	[8M]
	b)	List out assembler directives of 8086 and explain them briefly?	[8M]
4	a)	Explain different control word formats of 8255 PPI?	[8M]
	b)	Describe the operation of a parallel comparator A/D converter.	[8M]
5	a)	List out the salient features of 80386DX?	[8M]
	b)	Write short notes on register organisation of 80386?	[8M]
6	a)	Write an 8051 program to receive a serial byte through RxD.	[8M]
	b)	Describe the serial port operation in 8051 microcontroller?	[8M]
7		Discuss the interrupt structure in PIC microcontrollers. List the various sources in PIC 16C71. Write an initialization program to enable all of the interrupts in 16C74.	[16M]

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2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Define carry flag in flag register		[3M]
	b)	What is mean by End of procedure?		[4M]
	c)	Write any three applications of DAC?		[4M]
	d)	State the function of Bit test instructions?		[4M]
	e)	Define accumulator?		[3M]
	f)	Draw a simple PIC reset circuit?		[4M]

PART -B

2	a)	Describe the memory segmentation and instruction queue?	[8M]
	b)	Give the difference between minimum mode and maximum mode of operation in 8086 microprocessor?	[8M]
3	a)	Give the difference between maskable and non-maskable interrupts?	[8M]
	b)	Write an ALP in 8086 to exchange a block of N bytes of data between source and destination?	[8M]
4	a)	With a neat diagram explain the architecture of 8255?	[8M]
	b)	Explain the need of DMA data transfer?	[8M]
5	a)	With a neat sketch explain protected mode addressing without paging unit?	[8M]
	b)	Explain how paging mechanism provides an effective technique to manage the physical memory for multitasking systems?	[8M]
6	a)	Explain various modes of operation of timer /counters in 8051?	[8M]
	b)	State the advantages of microcontrollers and explain them?	[8M]
7		What do you mean by the prescaling of PIC timers? What is the advantage of doing so? Is it possible to apply the prescaling to watchdog timer? If so justify.	[16M]

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Code No: RT32041 **R13** SET - 3

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Define overflow flag		[3M]
	b)	What is mean by End of segment		[4M]
	c)	Write any three salient features of ADC 7109?		[4M]
	d)	State the function of Shift double instructions		[4M]
	e)	Define stack pointer		[3M]
	f)	Write the significance of program counter latch		[4M]

PART -B

2	a)	Briefly explain register organization in 8086 microprocessor	[8M]
	b)	Draw and explain 8086 timing diagram during write operation	[8M]
3	a)	Explain the stack structure of 8086 in detail with a sketch	[8M]
	b)	Discuss about various interrupts in 8086	[8M]
4	a)	Draw the interfacing diagram of an ADC to 8086	[8M]
	b)	Explain the following data transfers (i) Programmed I/O (ii) Interrupted I/O.	[8M]
5	a)	Describe the addressing modes to facilitate efficient execution of higher level programs	[8M]
	b)	Write short notes on memory addressing in real mode	[8M]
6		With a neat sketch explain the architecture of 8051	[16M]
7		What are various addressing modes in PIC microcontrollers? What is the role of INDF in indirect addressing mode	[16M]

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Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Define HALT?	[3M]
	b)	What do you mean by PUBLIC?	[3M]
	c)	Write any three salient features of mode 2 of 8255?	[4M]
	d)	State the function of set byte instruction?	[4M]
	e)	Define SFR Register bank?	[4M]
	f)	Draw the status register of 16CXX.	[4M]

PART -B

2	a)	With examples explain different addressing modes supported by 8086	[8M]
	b)	With a neat diagram explain a typical maximum mode operation of 8086 system	[8M]
3	a)	Explain while loop and repeat-until structures with an example	[8M]
	b)	What is macro? Give the difference between a macro and a subroutine	[8M]
4		Draw the internal architecture of USART 8251 and explain its different status and modes and control formats neatly.	[16M]
5	a)	Explain the types of registers available in 80386 and explain them briefly	[8M]
	b)	List out the data types supported by 80386	[8M]
6	a)	Explain the internal and external interrupts in 8051	[8M]
	b)	Discuss about the priority of the interrupts in 8051. And state for which interrupt highest priority is given?	[8M]
7	a)	With a neat sketch explain ARM architecture	[8M]
	b)	Briefly explain timers in PIC 16C61/71.	[8M]

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