Code No: R1632041 **R16** SET - 1

III B. Tech II Semester Regular Examinations, April/May - 2019

MICROPROCESSORS AND MICROCONTROLLERS

(**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. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

~~~~~~

PART –A

1.	a)	Differentiate between minimum and maximum mode operations of 8086 microprocessor.	[2M]
	b)	What is immediate addressing mode of 8086? Explain with an example instruction.	[2M]
	c)	List the applications of A/D and D/A converters.	[2M]
	d)	List the salient features of 80386DX microprocessor.	[3M]
	e)	Differentiate between microprocessors and microcontrollers.	[3M]
	f)	What is a Timer? What is its use?	[2M]

PART -B

2.	a)	What are registers? List and discuss the functions of the registers of 8086 microprocessor.	[9M]
	b)	What is an interrupt? List and explain different interrupts supported by 8086 microprocessor.	[5M]
3.	a)	Write and discuss different machine language instruction formats supported by 8086 microprocessor.	[9M]
	b)	Write an assembly language program in 8086 to find the factorial of a given number.	[5M]
4.	a)	Explain the BSR mode of operation of 8255 programmable peripheral interface.	[6M]
	b)	Write an assembly language program in 8086 to generate a symmetrical square wave with 1KHz frequency? Give the necessary circuit set up with a DAC.	[8M]
5.	a)	Explain the use of segment descriptor register and control registers of 80386.	[7M]
	b)	List and discuss different data types supported by 80386 microprocessor.	[7M]
6.	a)	Discuss the internal memory organization of 8051 microcontroller.	[7M]
	b)	List and explain various addressing modes of 8051 microcontroller.	[7M]
7.	a)	How microcontrollers can be used for automation and control applications? Explain.	[6M]
	b)	Discuss the additional features and applications of PIC 16F877 Microcontrollers.	[8M]

*****
~~~~~~

Code No: R1632041 **R16** SET - 2

III B. Tech II Semester Regular Examinations, April/May - 2019

MICROPROCESSORS AND MICROCONTROLLERS

(**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. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

~~~~~~

PART –A

1.	a)	What is the use of memory segmentation in 8086 microprocessor?	[2M]
	b)	What is the use of LOCK prefix in 8086 programming?	[2M]
	c)	Differentiate between static memory and dynamic memory.	[2M]
	d)	What is Paging? Explain its use.	[3M]
	e)	What is a seven segment display? Briefly explain its implementation.	[3M]
	f)	What are the advantages of PIC microcontrollers?	[2M]

PART -B

2.	a)	List the main features of 8086 microprocessor. Draw and explain the internal architecture of 8086 microprocessor.	[10M]
	b)	Draw the flag register of 8086 and discuss the use of each flag.	[4M]
3.	a)	What are addressing modes? List different addressing modes supported by 8086 and explain with suitable examples.	[10M]
	b)	What is the purpose of AAA, AAD and DAA instructions of 8086? Explain with examples.	[4M]
4.	a)	Interface an 8255 with 8086 to work as a peripheral interface. Initialize its port A as output port, port B as input port and port C as output port. Port A address should be 0740H.Writ a program to sense switch positions SW_0 –SW_7 connected at port B. The sensed pattern is to be displayed in port A, to which 8 LEDs are connected, which the port C lower displays number of 'ON' switches out of the total eight switches.	[12M]
	b)	What is DMA? What are its advantages?	[2M]
5.	a)	Draw and discuss the register set of 80386 and explain the functions of registers in brief.	[11M]
	b)	Enlist the additional features of 80486 over 80386 microprocessor.	[3M]
6.	a)	What are Timers? Explain the timers of 8051 microcontroller. Also explain the use of TMOD register.	[8M]
	b)	What are interrupts? What are various interrupts supported by 8051 microcontroller? Specify the priority of these interrupts.	[6M]
7.	a)	What is the use of File Selection Register (FSR) in PIC microcontrollers?	[7M]
	b)	Discuss the salient features of PIC microcontrollers.	[7M]

*****

|''|'||||''|'''|||'|
~~~~~~

Code No: R1632041 **R16** SET - 3

III B. Tech II Semester Regular Examinations, April/May - 2019

MICROPROCESSORS AND MICROCONTROLLERS

(**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. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

~~~~~~

PART –A

1.	a)	List and explain the machine control flags of 8086 microprocessor.	[2M]
	b)	Explain PUSH and POP inductions with examples.	[2M]
	c)	What is the use of BSR mode of operation of 8255?	[2M]
	d)	What Cache memory? What is its use?	[3M]
	e)	Differentiate between serial communication and parallel communication.	[3M]
	f)	List the applications of PIC microcontrollers.	[2M]

PART -B

2.	a)	What is memory segmentation? What is its use? Explain the memory segmentation in 8086 microprocessor.	[9M]
	b)	What is the use of operating 8086 in maximum mode? Explain.	[5M]
3.	a)	List different arithmetic instruction of 8086 microprocessor and explain with examples.	[7M]
	b)	Write a program in 8086 to convert a 16-bit binary number into equivalent BCD number.	[7M]
4.	a)	Discuss the applications of A-to-D and D-to-A converters.	[4M]
	b)	Draw the schematic diagram of stepper motor interfacing to 8086. Write an assembly language program to rotate shaft of a 4-phase, 200 teeth stepper motor i) 10 rotations in clockwise ii)5 rotations in anticlockwise iii) Exactly by an angle of 27^o in clockwise	[10M]
5.	a)	Explain the physical address formation in real address mode of 80386 microprocessor.	[8M]
	b)	What is meant by paging? What are its advantages and disadvantages?	[6M]
6.	a)	What are various addressing modes supported by 8051? Discuss with example instructions.	[9M]
	b)	Explain the I/O ports of 8051 microcontroller.	[5M]
7.	a)	Discuss the characteristics of PIC microcontrollers.	[7M]
	b)	Discuss the memory organization of PIC 16F877 microcontroller.	[7M]

*****

|''|'||||''|'''|||'|
~~~~~~

Code No: R1632041 **R16** SET - 4

III B. Tech II Semester Regular Examinations, April/May - 2019

MICROPROCESSORS AND MICROCONTROLLERS

(**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. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

~~~~~~

PART –A

1. a) Explain the functions of ALE, READY, HOLD, and BHE pins of 8086 microprocessor. [2M]
   b) Discuss the use of EQU, OFFSET, ENDP and LENGTH assembler directives. [2M]
   c) Differentiate between LEDs and LCDs. [2M]
   d) What is virtual memory? [3M]
   e) What are the additional features of microcontrollers over microprocessors? [3M]
   f) What is serial data communication? How is it different from parallel communication? [2M]

PART -B

2. a) What is an interrupt? What are different types of interrupt supported by 8086 microprocessor? [4M]
   b) With a neat schematic diagram, discuss the working of 8086 microprocessor in its maximum mode. Draw and discuss the timing diagrams for memory read and write operation. [10M]

3. a) Write an assembly language program to find out the number of positive numbers and negative numbers from a given list of 16-bit signed numbers. [7M]
   b) What are assembler directives? Explain any seven assembler directive supported by 8086. [7M]

4. a) What are the main features of 8255? Draw and explain the control word register formats of 8255. [5M]
   b) Interface ADC 0808 with 8086 using 8255 ports. Use port A of 8255 for transferring digital data output of ADC to the CPU and port C for control signals. Assume that an analog input is present at I/P2 of the ADC and a clock input of suitable frequency in available for ADC. Draw the schematic and write required ALP. [9M]

5. a) Draw and discuss the paging mechanism of 80386 in detail. [7M]
   b) What is meant by a cache memory? How does it speed up the program execution? Explain. [7M]

6. a) With a neat diagram, explain the internal architecture of 8051 microcontroller. [10M]
   b) List and discuss the applications of 8051 microcontrollers. [4M]

7. a) What is the use of interrupts? Discuss the interrupts in PIC 16F877. [6M]
   b) List and discuss the main instructions of the PIC 16F877. [8M]

*****

|''|'||||''|'''|||'|
~~~~~~