Code: 9A04602

1

III B. Tech II Semester (R09) Regular Examinations, April/May 2012

MICROPROCESSORS & MICROCONTROLLERS

(Common to EEE, ECE, CSE, EIE & E. Con. E)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) Briefly explain the internal architecture of MCS-96.
(b) Discuss about the process memory map of MCS-96.

2 (a) What are the advantages of memory segmentation in 8086 microprocessor?
(b) Discuss in brief about assembler directives.

3 (a) Write an ALP in 8086 to find the largest and smallest of a set of 8-bit numbers.
(b) Write an ALP in 8086 to add two ASCII numbers.

4 (a) Draw the block diagram of 8237 & explain its interfacing to 8086 microprocessor with a neat sketch.
(b) Briefly explain the maximum mode configuration of 8086.

5 Sketch and explain the interface of PPI 8255 to the 8086 microprocessor in minimum mode. Interface four 7 segment LEDs to display as a BCD counter.

6 (a) A terminal is transmitting asynchronous serial data at 1200 bd. What is the bit time? Assuming 8 data bits, a parity bit and 1 stop bit how long does it take to transmit one character.
(b) Draw necessary circuit to interface 8251 to an 8086 based system with an address 0C0H. Write the sequence of instructions to initialize 8251 for synchronous transmission. (Assume the necessary data).

7 (a) Draw the block diagram for multiple 8259A based interrupt system.
(b) Explain about cascading of 8259s and its functioning.

8 (a) What is microcontroller? List the features of 8051 microcontroller. Name the five interrupt sources of 8051.
(b) Write an assembly language program in 8051 to find the GCD of two numbers.

*****

Code: 9A04602

2

III B. Tech II Semester (R09) Regular Examinations, April/May 2012

MICROPROCESSORS & MICROCONTROLLERS

(Common to EEE, ECE, CSE, EIE & E. Con. E)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) Explain the architecture of 8086 microprocessor.
(b) Explain the segmentation in 8086 microprocessor. What are the different registers used for this purpose?

2 (a) Write an ALP to generate the FIBONOCI series.
(b) Write an ALP in 8086 to find 1's complement of a 16 bit hexadecimal number.

3 Explain 8257 DMA interface to 8086 micro processor & what are the registers available in 8257? What are their functions?

4 (a) Explain the functional diagram of 8279 keyboard and display controller.
(b) Discuss about DOS and BIOS interrupts.

5 (a) Explain IOCO and IOSO register for timer 1 in 80196.
(b) What are the interrupt sources for synchronous serial transmission and reception in 80196? What are the identification flags and local enable bits for these sources?

6 Distinguish between Asynchronous and Synchronous data transfer schemes & explain block diagram IC 8251. Explain the logic of 8251 program.

7 (a) With neat diagrams explain the five modes of operation of 8253 in detail.
(b) Draw the block diagram of 8253 and explain about each block in detail.

8 (a) What is assembly language program? What is the function of SWAP?
(b) List out the steps involved in programming the 8051 to transfer data serially.

*****

Code: 9A04602

3

III B. Tech II Semester (R09) Regular Examinations, April/May 2012

MICROPROCESSORS & MICROCONTROLLERS

(Common to EEE, ECE, CSE, EIE & E. Con. E)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1		Explain the instruction set of 8051 microcontroller. Write a program in 8051 to perform multiplication of two numbers using 8051.
2		Explain about addressing modes and instruction set of MCS-96 family.
3	(a)	Write in detail about the addressing modes of 8086 microprocessor.
	(b)	What are various types of procedures? Give examples.
4	(a)	Write a program to initialize 8251 in synchronous mode with even parity, single SYNCH character, 7 bit data character. Then receive FFH bytes of data from a remote terminal and store it in the memory at address 5000 H: 2000 H.
	(b)	Why are the two ground pins on an RS-232C connector not just jumpered together?
5	(a)	Explain need and importance of DMA.
	(b)	Discuss about Static RAM & EPROM with reference to 8086.
6	(a)	Sketch the interfacing of PPI 8255 to the microprocessor.
	(b)	Interface four 7 segment LEDs to display as a BCD counter.
7	(a)	It is necessary to serve 18 interrupt requests using 8259's. The address map for the 8259's is given from 0A00H to 0A0FH. Show the complete interface with 8086 system bus. These 18 interrupts are to be requested from interrupt type 040H on words, with edge trigged mode and auto end of interrupt. Give the initialization sequence for all 8259's.
	(b)	Explain the operating modes of 8259.
8	(a)	Write an ALP in 8086 to add five 8 bit numbers and the result is 16 bit.
	(b)	Write an ALP in 8086 to add two 8 bit decimal numbers.

*****

Code: 9A04602

4

III B. Tech II Semester (R09) Regular Examinations, April/May 2012

MICROPROCESSORS & MICROCONTROLLERS

(Common to EEE, ECE, CSE, EIE & E. Con. E)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) Explain the advantages of using the USART chips in microprocessor based systems.
(b) Discuss how 8251 is used for serial communication of data.

2 (a) Explain the flag register of 8086.
(b) Explain the concept of memory segmentation.

3 (a) Write about interrupt sequence in an 8086 system.
(b) Explain about command words of 8259.

4 (a) Write a recursive routine to evaluate the following polynomial Y = A0+A1X+A2X2+A3 X3 +.....+ANXN The coefficients A0,A1,A2....AN are to be successive words in memory and all parameter addresses are to be passed via the stack.
(b) Write a FAR procedure SER WORD that searches a word array for a given word and sets the value of a word parameter to the index of the element in the array if a match is found; otherwise, it puts a -1 in the index word parameter. The parameters are to be passed to the procedure via a parameter address table. Give a sequence for calling SER WORD to search ARRAY 1 of length LENGTH 1 for variable 'ID' and put the index in INDEX 1.

5 What is the difference between minimum and maximum modes of 8086 and also explain how 8086 microprocessor can be configured in minimum and maximum modes of operations?

6 (a) Explain in brief about programming timer interrupts in 8051.
(b) Discuss the bit format of IP register of 8051.

7 (a) Explain the advantages of using the keyboard and display controller chips in microprocessor based system.
(b) Write a program using RST 5.5 interrupt to get an input from keyboard and display it on the display system.

8 (a) Explain the historical perspective in development of MCS - 96 family.
(b) Explain the register to register architecture concept of MCS – 96 family.

*****