Code No: R05320404 **Set No. 1**

III B.Tech II Semester Regular Examinations, Apr/May 2008
MICROPROCESSORS AND INTERFACING
(Common to Electronics & Communication Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Electronics & Control Engineering and Electronics & Telematics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Draw the architectural diagram of 8085 and explain the function of each block in detail
   (b) Discuss about Multiplexing in 8086 microprocessor [10+6]
2. (a) Describe the following addressing modes with some examples.
      i. Indexed addressing with displacement
      ii. I/O port addressing
   (b) Explain the meaning of the following 8086 instructions
      i. mov [3845h], bx
      ii. add ax, [si]
      iii. mov bx, 2956h
      iv. adc ax, bx [8+8]
3. (a) Write an ALP in 8086 to count number of positive and negative numbers from an array of 8-bit integers
   (b) Write an ALP in 8086 to exchange a block of N bytes of data between source and destination [8+8]
4. (a) Explain how static RAMs are interfaced to 8086. Give necessary interface diagram assuming appropriate signals and memory size
   (b) Explain the need of DMA. Discuss in detail about DMA data transfer method [8+8]
5. (a) Suppose that the beginning address of an 8255 is 0900H and write a program sequence that will
      i. Put both groups A and B in mode 0 with ports A and C being input ports and port B as an output port.
      ii. Put group A in mode 1 with port A being as input and PC6 and PC7 being outputs and group B in mode 1 with port B being an input.
   (b) Give the input and output status words in mode 1 of 8255. [10+6]
6. (a) Discuss about DOS and BIOS interrupts. Give necessary examples.
   (b) Explain in general why interrupt priorities are required. Discuss about interrupt priorities of 8259. [8+8]

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7. (a) Draw the internal block diagram of 8251 and explain about each block in detail.
   (b) Distinguish between Synchronous and Asynchronous data formats. [10+6]

8. (a) Explain the internal and external program memory as well as data memory of 8051 with the diagram showing their capacities.
   (b) Draw the diagram to Interface Program memory of 16K x 8 EPROM to 8051and give its memory map. The address of memory map should start from 0000H. [8+8]

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Code No: R05320404 **Set No. 2**

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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
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1. (a) With a neat architectural diagram explain the functioning of an 8086 microprocessor
   (b) Compare the flag resisters of 8086 & 8085 [10+6]
2. (a) Explain the following 8086 instructions with examples.
      i. MUL
      ii. IMUL
      iii. DIV
      iv. IDIV
   (b) Differentiate between procedures and macros using certain examples. [8+8]
3. (a) Write an ALP in 8086 to find a maximum number in the array of 10 numbers
   (b) Write a recursive program in 8086 ALP to find the sum of the first "n integers [8+8]
4. (a) Explain how static RAMs are interfaced to 8086. Give necessary interface diagram assuming appropriate signals and memory size
   (b) Explain the need of DMA. Discuss in detail about DMA data transfer method [8+8]
5. (a) Draw the internal block diagram of 8255 and explain its working
   (b) Explain how a keyboard is interfaced to 8086 through 8255. Draw the necessary interface circuit? [8+8]
6. (a) How many Initialization Command words are required for a single 8259 in an 8086 based system? Explain their format?
   (b) Discuss the following interrupts?
      i. Single step Execution
      ii. Interrupt on Overflow. [10+6]
7. (a) Give the specifications of RS232C?
   (b) Explain about line driver and line receiver used in serial communication?
   (c) Give the status register of 8251 and explain each bit. [4+6+6]

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8. (a) Discuss about various addressing modes of 8051.
   (b) Explain the interrput structure of 8051 [8+8]

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Code No: R05320404 **Set No. 3**

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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain the functioning of following resisters of 8086 Microprocessor
   i. Segment resisters
   ii. Pointer resisters
   iii. Index resisters
   (b) Discuss briefly about pre-fetch queue in 8086 [12+4]

2. (a) Describe the following addressing modes with some examples.
   i. Indexed addressing with displacement
   ii. I/O port addressing
   (b) Explain the meaning of the following 8086 instructions
   i. mov [3845h], bx
   ii. add ax, [si]
   iii. mov bx, 2956h
   iv. adc ax, bx [8+8]

3. (a) Write an ALP in 8086 to find a maximum number in the array of 10 numbers
   (b) Write a recursive program in 8086 ALP to find the sum of the first "n integers [8+8]

4. (a) With relevant pin diagrams explain the minimum and maximum mode operations of 8086
   (b) Explain briefly about DMA data transfer method. [12+4]

5. (a) Distinguish between Mode set control word and BSR control Word of 8255?
   (b) Write an ALP in 8086 to generate a symmetrical square wave form with 1KHz frequency? Give the necessary circuit setup with a DAC? [8+8]

6. (a) Discuss in detail about the interrupt structure of 8086?
   (b) Describe the interrupt vector table of Intel Processors? [8+8]

7. (a) What are the important features of 8251?
   (b) Explain the following control words of 8251. With suitable Examples.
   i. Mode word

ii. Command word [6+10]

8. (a) Explain the internal and external program memory as well as data memory of 8051 with the diagram showing their capacities.

   (b) Draw the diagram to Interface Program memory of 16K x 8 EPROM to 8051and give its memory map. The address of memory map should start from 0000H. [8+8]

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Code No: R05320404 **Set No. 4**

III B.Tech II Semester Regular Examinations, Apr/May 2008
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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain the functioning of following resisters of 8086 Microprocessor
   i. Segment resisters
   ii. Pointer resisters
   iii. Index resisters
   (b) Discuss briefly about pre-fetch queue in 8086 [12+4]

2. (a) Describe the following addressing modes with some examples.
   i. Indexed addressing with displacement
   ii. I/O port addressing
   (b) Explain the meaning of the following 8086 instructions
   i. mov [3845h], bx
   ii. add ax, [si]
   iii. mov bx, 2956h
   iv. adc ax, bx [8+8]

3. (a) Write an ALP in 8086 to add two 16-digit packed BCD numbers
   (b) Write an ALP in 8086 to divide a 32-bit number by a 16-bit number [8+8]

4. (a) With relevant pin diagrams explain the minimum and maximum mode operations of 8086
   (b) Explain briefly about DMA data transfer method. [12+4]

5. (a) Write the BSR control word to set bit 3 of port C and also write the BSR control word to reset bit 3 of port C. Introduce a 1m sec delay between set and reset of bit 3 of port C.
   (b) Briefly explain the application examples of mode 0, mode 1 and mode 2 of 8255.
   [8+8]

6. (a) Explain the importance of 8259 interrupt controller and explain how does it handle the interrupt.
   (b) Give an interfacing diagram, which shows the connections between 8086 and 8259.
   [10+6]

Code No: R05320404 **Set No. 4**

7. (a) Discuss the types of serial communication?
   (b) Write an 8086 instruction sequence for receiving 50 characters using 8251 and store them in memory at location 2080H.. [8+8]

8. (a) Discuss in detail about serial port operation in 8051 microcontroller.
   (b) Explain in detail about the interrupt structure of 8051. [8+8]

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