Code No: R32044 **R10** **Set No: 1**

III B.Tech. II Semester Regular Examinations, April/May -2013

MICRO PROCESSORS AND MICRO CONTROLLERS

(Comm to Electronics and Communication Engineering and Electronics and Computer Engineering and Biomedical Engineering and Electronics and Instrumentation Engineering)

Time: 3 Hours **Max Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1. a) Explain the physical address formation in 8086.
   b) Explain the purpose of ALE, BHE, DT/R and DEN pins of 8086. Show their timing in the system bus cycle of 8086. [5+10]

2. Explain the meaning of the following 8086 instructions
   i) MOV [1234h], BX ii) ADC AX, [SI] iii) MOV BX, 2956h
   iv) STOS v) DAA vi) IMUL vii) DIV viii) CMC. [15]

3. With a neat diagram, explain the working of 8257 DMA controller. [15]

4. a) Explain the timer modes in 8051 controller.
   b) Draw the structures of TMOD and TCON registers and explain. [8+7]

5. a) Explain the salient features of 80286 processor.
   b) Compare the real mode and protected mode of operations. [15]

6. a) Give the Programmer model for ARM.
   b) Describe the implementation of branch, call and return instructions in ARM instruction set.
   c) Describe and compare thumb instruction subset with that of the ARM. [5+5+5]

7. a) Explain the BSR mode of 8255.
   b) Write a program to interfacing 8086 with stepper motor. [6+9]

8. a) Explain features of PIC. [5+10]
   b) What are the sources of interrupts in PIC 16C61/71? How they are recognized.

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Code No: R32044 **R10** **Set No: 2**

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MICRO PROCESSORS AND MICRO CONTROLLERS

(Comm to Electronics and Communication Engineering and Electronics and Computer Engineering and Biomedical Engineering and Electronics and Instrumentation Engineering)

Time: 3 Hours **Max Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1. With a neat architectural diagram explain the functioning of an 8086 microprocessor. [15]

2. a) What is a recursive procedure? Write a recursive procedure to calculate the factorial of number N, where N is a two-digit Hex number.
   b) Explain how multiplexing is implemented in 8086? [7+8]

3. Explain how 8259 can be programmed for rotating interrupt request priorities? Draw the interrupt vector table structure. [15]

4. a) Explain the operating modes of ARM processor.
   b) Briefly explain the concept of instruction level parallelism. [8+7]

5. a) Explain the internal RAM organization of 8051.
   b) What is the use of SFR? Discuss the structure of the following registers and explain.
      a) PSW
      b) IE
      c) SCON
      d) TMOD
      e) PCON
      f) IP. [7+8]

6. a) Explain the memory management unit and special function register of 80386 processor
   b) Explain the advantages of RISC over CISC processor. [7+8]

7. Write short notes on the following.
   (a) Key board and Display interface.
   (b) A/D and D/A convertors.
   (c) Transducers and Actuators. [5+5+5]

8. a) How many timers does PIC contain? Explain timer operation.
   b) Draw and explain program memory organization of stack of PIC 16c61. [6+7]

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Code No: R32044 **R10** **Set No: 3**

III B.Tech. II Semester Regular Examinations, April/May -2013

MICRO PROCESSORS AND MICRO CONTROLLERS

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Time: 3 Hours **Max Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1. a) What are the differences between mask able and non-mask able interrupts? Give with suitable examples.
   b) Explain the interrupt structure of 8086 microprocessor. [5+10]

2. a) Draw and explain the register origination of 8086.
   b) Explain different type of addressing modes with examples? [8+7]

3. a) Explain the working of 8257 DMA controllers.
   b) Write a program to initialize 8251 in asynchronous mode with even parity, 7 bit data character, 2400bd. [7+8]

4. a) List the four major processing units in an 80386 microprocessor and briefly describe the function of each?
   b) Define the terms interrupt, exception, fault and trap in 80386. [7+8]

5. Draw and explain the internal architecture of 8255 PIO and explain how the interfacing procedure to I/O peripherals. [15]

6. a) Explain the RAM organization in 8051 microcontroller.
   b) List the special function registers of 8051 and explain them. [7+8]

7. a) Explain the bus architecture of an ARM processor.
   b) Write a program to sort '**N**' number of data. [8+7]

8. a) Explain the modes of operation of timer in a PIC microcontroller.
   b) Discuss about the VART interface of PIC microcontroller. [7+8]

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Code No: R32044 **R10** **Set No: 4**

III B.Tech. II Semester Regular Examinations, April/May -2013

MICRO PROCESSORS AND MICRO CONTROLLERS

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Time: 3 Hours **Max Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1. Draw the block diagram of maximum mode operation of 8086 processor and explain. [15]

2. a) List three major advantages that the 80386 microprocessor has over the 80286.
   b) What processor has over the 386DX processor and the 386SX processor?
   c) What is the purpose of the 368DX BE0 – BE3 signals. [5+5+5]

3. a) Explain about the following assembler directives of 8086 microprocessor
   i) EQU ii) EXTRN iii) SEGMENT iv) PUBLIC v) TYPE
   b) Write a recursive procedure to calculate the factorial of number N, where N is a two-digit Hex number. [8+7]

4. Explain the handshaking signal sequence for a system using a modem. Write a short note on synchronous serial data communication. [15]

5. a) Explain the organization of memory in 8051 microcontroller
   b) Explain the structure of Program Status Word register of 8051. [7+8]

6. a) Explain the addressing modes of an ARM processor.
   b) Write a program to find the cube of a given number using lookup table method. [8+7]

7. a) Discuss briefly the architecture of PIC microcontroller. [7+8]
   b) Write a note on A/D converter and PWM in PIC microcontroller environment.

8. Draw a block diagram of 8255 PPI. Also explain mode 2 of 8255 with the help of Timing diagram. [15]

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