DEPARTMENT OF ELECTRONICS AND COMMUNICATION
MICROPROCESSORS AND MICROCONTROLLERS

III /II ECE : (Question Bank) : R-16   **2018-2019**

UNIT-1

1. a) Differentiate between Microprocessor and Microcontroller. Mention few applications.[4]

   b) With the help of functional diagram explain the operation of 8086 microprocessor   [6]

2. a) Define Interrupt and explain the interrupt services routines in 8086 Microprocessor.

   [5]

   b) Describe the function of the following pins in8086 maximum mode of operation

   i) TEST ii) RQ0 $/G\,T_0$ and RQ1$//G\,T1_1$ [5]

3. a) List out the different mask able and non-maskable interrupt of 8086 Microprocessor and explain its importance.   [5]

   b) Explain the minimum mode operation of 8086 with the help of a PIN diagram.   [5]

4. a) Describe about the physical memory organization in an 8086 system (or) Discuss about the memory segmentation in 8086 processor.   [5]

   b) Draw the timing diagram for the memory read cycle operation in the minimum mode of 8086 processor.   [5]

5. a) Draw the Register organization of 8086 microprocessor and explain its operation.   [5]

   b) What is BIU and give the special processor activities of 8086?   [5]

UNIT-II

1. a) Draw the stack structure of 8086 Microprocessor and explain its need while presenting an Interrupt.   [5]

   b) Write an assemble language program for finding the Largest number in an Array, the length of array is ten 16-bit numbers.   [5]

2. a) Explain any three string manipulation instructions of 8086.   [5]

   b) Write an assemble language program to find the sum of the squares of first ten numbers.

   [5]

3. a) Discuss briefly about the addressing modes of 8086 with examples.   [5]

   b) Write an assemble language program to arrange the given array in ascending order, the

length of array is ten 16-bit numbers. .   [5]

4. a) Define assembler and explain the different assembler directives used in 8086
   microprocessor   [5]
   b) Write a program with a flowchart to multiply two 8-bit numbers.   [5]

5. a) Write an ALP to find the multiplication of two 16-bit Hex numbers?   [5]
   b) Write a recursive procedure to calculate the factorial of number N, where N is a
      two-digit Hex number.   [5]

UNIT-III

1. a) Draw block diagram of 8255 and explain its modes of operation.   [5]
   b) Show the control word format of 8255 and explain how each bit is programmed.   [5]

2. a) Draw and Explain the cascaded mode operation of 8259 with a neat block diagram. [5]
   b) Discuss about the operational command words of 8259 and draw its frame format.   [5]

3. With a neat diagram, explain the working of 8257 DMA controller.   [5]

4. a) Interfacing of a two 4X4 PROM and two 8X4 RAM with 8086 CPU, draw the
      memory map and interfacing diagram for it, the RAM address follows the ROM
   address..   [5]
   b) Name any two types of A to D converters. Explain any one.   [5]

5. a) What are the registers available in 8257? What are their functions.   [5]
   b) Discuss about the initialization command words of 8259 and their sequence in detail.[5]

UNIT-IV

1. a) Draw the flag register of 80386 processor and Explain the register organization of
      this processor.   [5]
   b) Briefly explain the salient futures in an 80386 processor and compare them with an
      80486 processor.   [5]

2. a) Discuss the features of 80486 microprocessor.   [5]
   b) Explain the different instruction set of an 80386 processor along with examples.   [5]

3. a) Define paging. Draw and explain the paging mechanism of 80386 processor.   [5]
   b) Draw the pin diagram of an80386 processor and explain the function of each pin in
      detail.   [5]

4. a) Draw the internal architecture of 80386 processor and explain its operation in detail. [5]
   b) Draw and explain the virtual 8086 mode of 80386 processor in detail.   [5]

5. a) Explain the memory management unit and special function register of 80386
processor
[5]

b) Explain the Real mode and protected mode concepts of 80386 Microprocessor   [5]

UNIT-V

1. a) Discuss about the addressing modes of 8051 micro controller   [5]
   b) Explain the arithmetic and logic instruction of 8051 microcontroller with example. [5]

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

3. a) Explain the architecture of 8051 with its diagram.   [5]
   b) Explain the data types and assembler directives of 8051.   [5]

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

5. a) Explain the modes of operation of Timer unit in 8051 Microcontroller.   [5]
   b) Write a program based on 8051 instruction set to pack array of unpacked BCD digits.[5]

UNIT-VI

1. Write short notes on following
   a) List out the salient futures of PIC controller.   [5]
   b) List out the salient features of PIC Flash controller.   [5]

2. a) List out the interrupts of PIC controller.   [5]
   b) Draw and Explain different timers presented in PIC controller.   [5]

3. a) Draw the internal architecture of PIC controller and explain its operation.   [5]
   b) Draw the flag register of PIC controller and explain the function of each flag in detail. [5]

4. Explain the Power on reset and watch dog timers operation in PIC controller in detail. [5]

5. a) Explain different I/O ports presented in PIC controller and draw the necessary
      diagram for it.   [5]
   b) List different PIC micro controller families.   [5]