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# EC - 504
## B.E. V Semester
Examination, December 2013
## Microprocessors and Microcontroller

### Time : Three Hours

**Maximum Marks : 70**

**Note:** Attempt any one question from each unit. All questions carry equal marks.

### Unit - I

1. a) Draw the register organisation of 8086 and explain typical applications of each register.
   b) Name and explain the modes of operation of 8086 in detail.

OR

2. a) What are the different segments of 8086. Describe the organization and functionality of each segment in memory.
   b) Draw the 8086 pin diagram. Explain the functionality of each pin.

### Unit - II

3. a) What are the different addressing modes available in 8086? Give one example of each.
   b) Describe the instruction format of 8086. Also describe the MOV instructions of 8086.

OR

4. a) Explain the following 8086 instructions:
   i) PUSH BX          ii) MOV mem/reg, data
   iii) ROR            iv) LOOPE
   v) ADC AL, DH

   b) Write a program in 8086 assembly language to count the number of positive and negative number in a given series of numbers.

### Unit - III

5. a) Explain in detail various operating modes of 8253 programmable interval timer.
   b) Explain following for 8255:
   i) Mode control word format
   ii) Bit set/reset control word format.

OR

6. a) Draw the block diagram of 8251 USART and explain function of each block.
   b) How will you measure the width of a pulse using timer 8253/8254.

### Unit - IV

7. a) What is the difference between maskable and non maskable interrupts. Explain the interrupt structure of 8086 in detail.
   b) Discuss the various priority modes of programmable interrupt controller (8259) in detail.

OR

8. a) Give the interrupt vector table of 8086 microprocessor. Name the interrupt related flags and instructions available in 8086 and explain them in detail.
   b) Draw the architecture of PIC 8259 indicating different blocks and their interconnection explain its operation.

### Unit - V

9. a) With the help of block diagram explain the architecture of 8051 microcontroller.
   b) What are the various addressing modes available in 8051? Explain with examples.

OR

10. a) Discuss the register set and flags of 8051 microcontroller.
    b) Give the pin diagram of 8051 microcontroller and explain the function of each pin.