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T.E. (Computer Engineering) (Semester – I) Examination, 2010
MICROPROCESSORS AND MICROCONTROLLERS
(2003 Course)

Time : 3 Hours Max. Marks : 100

Instructions *: 1) In Section* ***I,*** *attempt Q. No.* ***1*** *or Q. No.* ***2,*** *Q. No.* ***3*** *or Q. No.****4,*** *Q. No.* ***5*** *or Q. No.* ***6.***

*2) In Section II, attempt Q. No. 7 or Q. No. 8, Q. No. 9 or Q. No.****10,*** *Q. No. 11 or Q. No. 12.*

3) Answers to the ***two*** *Sections should be written in* ***two separate*** *books.*

4) ***Neat*** *diagrams must draw* ***wherever*** *necessary.*

5) Figures to the ***right*** *indicate* ***full*** *marks.*

6) Assume suitable data ***if necessary.***

SECTION – I

1. a) Draw and explain the architectural block diagram of Pentium processor. 9
   b) Explain the branch prediction mechanism of Pentium processor. 9

OR

2. a) What are major RISC features of Pentium processor? 6
   b) Explain the superscalar architecture of Pentium processor. 6
   c) What are different floating-point data types supported by Pentium FPU? Give formats for any two data types. 6

3. a) Draw and explain non-pipelined read cycle of Pentium. 8
   b) Explain following instructions with respect to Pentium instruction set 8
      i) CALL for near and far procedures
      ii) BOUND

OR

4. a) With the help of neat block diagram explain the data bus interface with 8 bit, 16 bit and 32 bit memory in Pentium. 8

   b) Explain different types of JMP instructions executed in Pentium. 8

5. a) Explain the methods by which task switching can be forced in Pentium. 8

   b) What is the purpose of control registers in protected mode? Explain use of CR2 and CR3 for paging in Pentium. 8

OR

6. a) With the help of a neat diagram explain linear to physical address translation. 8

   b) What is the purpose of Task register? Explain its structure with the help of neat diagram. 8

SECTION – II

7. a) What is Multitasking? Explain what registers and descriptors are involved to support this feature in Pentium. 8

   b) How virtual mode is different than protected mode ? 6

   c) What do you mean by term fault in Pentium? Explain with examples. 4

OR

8. a) What is IDT? Explain the various mechanisms to handle interrupts in Pentium. 8

   b) Explain the significance of I/O permission bit map in Pentium. 6

   c) Explain Nested task in Pentium. 4

9. a) Describe Serial port in 8051 along with different modes. 8

   b) What are different addressing modes in 8051? Explain with suitable example. 8

OR

10. a) Describe Timer in 8051 along with different modes. **8**

    b) Write assemble language program for 8051 microcontroller to copy five numbers from internal data memory (starting at address 50H) to external data memory (starting at address 5000H). **8**

11. a) Explain architectural features of PIC 16C61/71. **6**

    b) What are the steps required in ADC programming in PIC 16C61/71 ? **6**

    c) Draw and explain Status registers of PIC 16C61/71. **4**

OR

12. a) Describe Power on Reset and Brown out Reset in PIC Microcontroller. **6**

    b) Name different SFRs used for interrupt handling in PIC 16C61/71. **6**

    c) Explain the following instructions:

    i) RETFIE

    ii) BTFSS. **4**
