Seat
No.

T.E. (Comp. Engg.) (Semester – I) Examination, 2013
MICROPROCESSOR AND MICROCONTROLLERS
(2008 Course)

Time : 3 Hours   Max. Marks : 100

Instructions : 1) *Answer **any 3** questions from **each** Section.*
             2) ***Neat*** *diagrams must be drawn **wherever** necessary.*
             3) *Black figures to the **right** indicate **full** marks.*
             4) *Assume suitable data, **if** necessary.*

SECTION – I

1. a) Which features make the pentium a superscalar processor ? Give details of
      every feature.   **6**

   b) What is privilege level of an application program, if it is running in real model ?
      Justify.   **4**

   c) Explain following pins of pentium   **6**

      1) $\overline{ADS}$

      2) $\overline{BE_0} - \overline{BE_7}$

      3) $D/\overline{C}$

                        OR

2. a) Draw and explain Flag registers of pentium.   **8**

   b) Explain Bit manipulation instructions of pentium.   **8**

3. a) Explain following cycles :   **8**
       i) Burst read cycle
       ii) Interrupt acknowledge cycle.

   b) Explain programming model of pentium.   **8**

                        OR

4. a) Explain memory organization in pentium. Discuss different control signals involved in memory data transfer. **8**

   b) Draw and explain CRO register of pentium. **8**

5. a) What is use of segment selector and segment descriptor in segmentation. Explain format of both. **6**

   b) Describe PDE and PTE formats. **6**

   c) What is translation lookaside buffer ? **4**

                    OR

6. a) Explain various ways of control transfer in pentium and discuss the protection checking mechanism for the same. **10**

   b) Calculate end address of the segment for G = 0, G = 1. **6**
      Assume
          Base Address = 00005000H
                  limit = 0000AH

                    SECTION – II

7. a) Explain Registers and Descriptors supported to multitasking with suitable diagrams. **8**

   b) Explain address generation in virtual 8086 mode. **4**

   c) Explain Interrupts and Exceptions handling in Real mode. **6**

                    OR

8. a) Explain task switching mechanism through task gate with suitable diagram. **8**

   b) How I/O devices are handled in pentium processor ? **6**

   c) Which are different classes of exceptions ? **4**

9. a) Draw and explain functional block diagram of 8051 microcontroller. **10**

   b) What are the functions of the following 8051 pins

      i) ALE   ii) $\overline{EA}$

      iii) $\overline{TxD}$ iv) $\overline{RxD}$

      v) To   vi) RST. **6**

                    OR

10. a) Explain MOVC and MOVX instruction of 8051 microcontroller. **4**

 b) Explain following addressing modes of 8051 microcontroller **8**
    i) Register Addressing
    ii) Register Indirect Addressing
    iii) Immediate Addressing
    iv) Direct Addressing.

 c) Explain following instructions of 8051 microcontroller. **4**
    i) MOVX A, @ DPTR
    ii) MOVX A, @ Ri

11. a) Describe different Timer modes of 8051 microcontroller. **8**

 b) Explain interrupt mechanism of 8051 microcontroller. **8**

                    OR

12. a) Explain mode 0 and mode 1 of serial communication of 8051 microcontroller. **6**

 b) Draw and explain Serial Control Register (SCON) of 8051 microcontroller. **4**

 c) Draw and explain architecture of 8096 microcontroller. **6**

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