[3863] – 443

T.E. (Computer Engineering) (Semester – I) Examination, 2010
MICROPROCESSORS AND MICROCONTROLLERS (New)
(2008 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) Compare 80386, 80486 and Pentium based on architecture. 6

   b) What is the function of each of the following pins ? 6

   i) $\overline{BRDY}$ ii) $\overline{ADS}$ iii) $\overline{BE0} - \overline{BE7}$

   c) What is Branch Prediction in Pentium ? Explain with diagram. 6

OR

2. a) With the help of neat block diagram, explain the architecture of Pentium processor. 8

   b) Explain Data Cache organisation of Pentium. 6

   c) What is the use of WB/$\overline{WT}$ and $\overline{FLUSH}$ pins of Pentium. 4

3. a) With the help of neat diagram, explain non-pipelined read bus cycle of Pentium. 6

   b) List and explain protected mode registers of Pentium Processor. 6

   c) What is the difference between RESET and INIT pins of Pentium. 4

OR

4. a) Describe different addressing modes in Pentium with suitable examples. 8

   b) Draw and explain memory interfacing mechanism for 32 bit and 16 bit memory with Pentium. 8

P.T.O.

5. a) Describe linear to physical address translation mechanism in Pentium. Draw the required data structures. 8

   b) Draw and explain the use of control registers in Pentium. 8

OR

6. a) How pages can be protected in Pentium ? Explain in detail. 8

   b) Describe logical to linear address translation mechanism in Pentium. Draw the required data structures. 8

SECTION – II

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

   b) How I/O devices are handled by Pentium processor ? 6

   c) What are different classes of exception ? 4

OR

8. a) How interrupts are handled in protected mode ? Explain with the help of neat diagram. 8

   b) Explain Virtual Mode in Pentium. How does Pentium enters virtual mode ? 6

   c) Explain Nested Task in Pentium. 4

9. a) Explain the features of 8051 Microcontroller. 6

   b) Draw and explain Program Status Word of 8051 Microcontroller. 6

   c) Explain MOVC and MOVX instruction of 8051 Microcontroller. 4

OR

10. a) What are different addressing modes in 8051? Explain with suitable examples. 6

    b) Explain how I/O pins of 8051 can be both input and output. 6

    c) What is the function of EA and $\overline{\text{PSEN}}$ pins of 8051 Microcontroller ? 4

11. a) Describe different Timer modes of 8051 Microcontroller. 8

    b) Explain features and architecture of 8096 Microcontroller. 8

OR

12. a) What are the different sources of interrupts in 8051 ? Explain interrupts handling mechanism in 8051. 8

    b) Describe serial port on 8051 with the help of SCON. 8