May - June - 2011

[3963] – 353

T.E. (Computer Engineering) (Semester – I) Examination, 2011
MICROPROCESSORS AND MICROCONTROLLERS (New)
(2008 Pattern)

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) With the help of neat block diagram, explain the architecture of Pentium Processor. **8**

   b) State and explain the conditions that Instructions in Pentium can be paired and be executed in parallel. **6**

   c) List RISC features of Pentium. **4**

   OR

2. a) Which features makes Pentium, a superscalar processor ? Explain in detail. **6**

   b) Describe the floating Point Unit in Pentium. **6**

   c) What is the function of each of the following pins ? **6**

   i) $\overline{\text{BOFF}}$ ii) $\overline{\text{APCHK}}$ iii) $\overline{\text{KEN}}$

3. a) Describe different addressing modes in Pentium along with suitable examples. **8**

   b) Draw and explain timing diagram of non-pipelined write cycle with one wait state. **8**

   OR

P.T.O.

4. a) What is BIST ? Explain in detail. 6

b) Describe the following instructions : 6

i) RDTSC ii) WBINVD iii) LIDT iv) APRL

c) Explain different data types supported by Pentium. 4

5. a) What is TLB ? Describe its use in Pentium in detail. 8

b) Draw and explain CALL GATE mechanism in detail. 8

OR

6. a) Explain the process of linear to physical address translation in Pentium. Draw the required data structures. 8

b) What are the rules of accessing following segments other than its own for any program 8

i) Data segment

ii) Conforming Code Segment

iii) Non-conforming code segment without using call gates

iv) Non-conforming code segment with call gate ?

SECTION – II

7. a) What is Task switching ? Explain the steps required for task switching. 8

b) Explain I/O permission bit map in pentium. 6

c) Explain the steps required to switch from Real mode to virtual mode. 4

OR

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

b) What is Task ? Explain Task State Segment in detail. 8

c) What is Virtual Mode ? 2