



[4658] – 153

Seat No.	
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**T.E. (Computer) (Semester – I) Examination, 2014  
MICROPROCESSORS AND MICROCONTROLLERS  
(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) Answer 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 diagram explain architecture of Pentium processor. **8**  
b) Write architectural differences between 80286 and 80386 of Intel processors. **8**  
OR
2. a) Explain Branch Prediction in Pentium with diagram. **8**  
b) Which features makes Pentium, a superscalar processor ? Explain in detail. **8**
3. a) Explain with the help of timing diagram the memory read and write operations in Pipelined bus cycles. **8**  
b) Describe following addressing modes of Pentium with suitable examples. **8**
  - 1) Immediate addressing mode
  - 2) Direct addressing mode
  - 3) Register indirect addressing mode
  - 4) String addressing mode.
- OR
4. a) What do you mean by bus cycle ? Discuss the various control signals required for I/O Read and write cycle. **8**  
b) What is the purpose of control registers ? Explain significance of these registers in working if cache and paging unit. **8**
5. a) Draw a segment descriptor format. Discuss various protection mechanisms provided to access segment in Pentium. **10**  
b) Define a selector. Draw and explain its structure. **8**

OR

P.T.O.



- 6. a) What is a linear address ? Explain the mapping of linear address to physical address with an appropriate data structure. **10**
- b) How does TLB increase the performance of paging mechanism in Pentium ? **8**

SECTION – II

- 7. A) How interrupts are handled in protected mode ? Explain with the help of neat diagram. **8**
- B) What are the different ways to enter into virtual mode ? **6**
- C) Compare real mode, protected mode and virtual mode. **4**

OR

- 8. A) Differentiate between interrupt handling in real mode and protected mode of Pentium in detail. **10**
- B) What is IDT ? Explain various mechanisms to handle interrupt in Pentium. **8**
- 9. A) Explain 8051 microcontroller's External memory and I/O addressing modes. **8**
- B) Explain General Purpose (Working Registers) and special function registers in 8051. **8**

OR

- 10. A) Draw the memory map of 8051 microcontroller. Show the bit addressable Internal RAM area. **8**
- B) What are different addressing modes in 8051 ? Explain with suitable examples. **8**
- 11. A) What are the various SFR you need while programming a serial port ? Explain in detail. **8**
- B) Describe different Timer modes of 8051 Microcontroller. **8**

OR

- 12. A) Describe serial port on 8051 with the help of SCON. **8**
- B) Draw and explain Program Status word of 8051 Microcontroller. **8**

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