

Total No. of Questions—**12**

[Total No. of Printed Pages—**3**

Seat No.	
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**[4857]-214**

**S.E. (Second Semester) (Information Technology) EXAMINATION, 2015**

**PROCESSOR ARCHITECTURE AND INTERFACING**

**(2008 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 100**

**N.B. :—** (i) Answer Q. No. **1** or Q. No. **2**, Q. No. **3** or Q. No. **4**, Q. No. **5** or Q. No. **6** from Section I and Q. No. **7** or Q. No. **8**, Q. No. **9**, or Q. No. **10**, Q. No. **11** or Q. No. **12** from Section II.

(ii) Answers to the two Sections should be written in separate answer books.

(iii) Neat diagrams must be drawn wherever necessary.

(iv) Figures to the right indicate full marks.

(v) Assume suitable data, if necessary.

### **SECTION I**

**1. (a)** Draw and explain functional block diagram of 80386 in detail. [10]

**(b)** Explain the significance of the following signals of 80386 microprocessor : [8]

(1)  $\overline{\text{BE3}}\text{-}\overline{\text{BE0}}$

(2)  $\overline{\text{LOCK}}$

(3)  $\text{D}/\overline{\text{C}}$

(4)  $\overline{\text{ADS}}$

P.T.O.

*Or*

2. (a) Explain memory segmentation of 80386 microprocessor in real mode. [8]
- (b) Differentiate between : [10]
- (1) Memory mapped I/O and I/O mapped I/O
- (2) 8086 and 80386.
3. (a) Explain any *four* addressing modes of 80386 with suitable examples. [8]
- (b) Draw and explain control word format for I/O and BSR mode of 8255. [8]

*Or*

4. (a) What are the components of MS-DOS ? Explain any *four* DOS function with suitable examples. [8]
- (b) What do you mean by Assembler Directives ? How is it different from instruction ? Explain with the help of examples. [8]
5. (a) With neat diagrams explain process of address translation in protected mode of 80386 when paging is enabled. [8]
- (b) Write a short note on TLB. [8]

*Or*

6. (a) Write a short note on Virtual Memory of 80386 Microprocessor. [8]
- (b) Draw and explain how 80386 processor translates logical address into linear address. [8]

## SECTION II

7. (a) What is back link ? Where is it situated ? Explain its use in 80386 Microprocessor. [8]  
(b) What are different classes of exception in 80386 ? Describe with suitable example. [6]  
(c) Write a short note on Virtual Mode. [4]

*Or*

8. (a) What is multitasking ? Explain registers and descriptors are involved to support this feature in 80386. [10]  
(b) How are interrupts handled in protected mode ? Explain with the help of neat diagram. [8]
9. (a) What are the different addressing modes of 8051 Microcontroller ? Explain with suitable examples. [8]  
(b) Explain Data Memory organization of 8051 Microcontroller in detail. [8]

*Or*

10. (a) Describe different sources of interrupt and how these interrupts are handled in 8051 Microcontroller. [8]  
(b) Describe register set of 8051 Microcontroller. [8]
11. (a) Describe features of Texas MSP 430. [6]  
(b) Explain Timer Structure of 8051 Microcontroller and SFRs used in Timer Programming. [10]

*Or*

12. Explain in detail Serial Port of 8051 Microcontroller with the help of SCON. [16]