Total No. of Questions—12]

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Seat
No.

[4957]-214

S.E. (Second Semester) (Information Technology)

EXAMINATION, 2016

PROCESSOR ARCHITECTURE AND INTERFACING

(2008 Pattern)

Time : Three Hours   Maximum Marks : 100

N.B. :— (*i*) Answer Q.1 or Q.2, Q.3 or Q.4 or Q.6 from Section I and
              Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.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 side indicate full marks.

      (*v*) Assume suitable data if necessary.

SECTION-I

1. (*a*) Draw and explain different Control Registers of 80386
          Microprocessor in detail.   [10]

    (*b*) List the Features of 80386 Microprocessor and Draw functional
          block diagram of 80386.   [8]

Or

2. (*a*) Draw and explain non pipelined read cycle of 80386 Microprocessor [10]

P.T.O.

(b) Explian significance of following signals of 80386 [8]

    (i) NA'

    (ii) ERROR'

    (iii) BS16'

    (iv) PREQ

3. *(a)* Explain significance of the following Assembler Directives : [8]

    (i) .Model Small

    (ii) .Stack

    (iii) EXTRN

    (iv) MACRO

(b) Compare and contrast : [8]

    (i) Procedure and Macro

    (ii) .COM and .EXE

Or

4. *(a)* Draw and explain block diagram of 8255. [8]

(b) Explain the following addressing modes of 80386 with suitable examples. [8]

    (i) Register Addressing Mode

    (ii) Immediate Addressing Mode

    (iii) Based Indexed Addressing Mode

    (iv) Scaled Addressing Mode

5. *(a)* Draw and explain how 80386 Processor translates Logical address into Linear address. [8

(b) Write down the steps to switch from PM to RM. [8]

<center>*Or*</center>

6. (*a*) What is Descriptor Table? Write the significance of the following registers with diagram. [8]

        (*i*) GDTR

        (*ii*) LDTR

        (*iii*) IDTR

(*b*) What is TLB ? Why it is necessary ? Explain with the help of diagram. [8]

<center>**SECTION-II**</center>

7. (*a*) What is a Task ? What is Multitasking ? What is a Task State Segment ? What is its Size and Contents ? Explain clearly indicating checks and its usage by 80386 processor. {10]

(*b*) What is virtual mode ? Explain in detail. [8]

<center>*Or*</center>

8. (*a*) Write short notes on : [18]

        (*i*) I/O permission bit map.

        (*ii*) Task Switching without Task Gate

        (*iii*) Privileged levels in 80386

9. (*a*) Draw and Explain architectural block diagram of 8051 Microcontroller. [8]

(b) Explain the following : [8]

(i) AJMP Address

(ii) RET and RETI

(iii) MUL AB

(iv) MOV A,Rn

Or

10. (a) How many Register banks does 8051 have ? Explain with the help of diagram. [8]

(b) Explain interrupt structure of 8051 microcontroller with priority structure. [8]

11. (a) Describe features of PIC Microcontroller. [6]

(b) List the operating modes of Timer of 8051 and explain any *two* of them. [10]

Or

12. (a) For Serial Communication, What are the SFR's used in 8051 ? Explain in detail with its structure. [8]

(b) Explain IE and IP registers of 8051 Microcontroller. [8]