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[4757]-198

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

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 side indicate full marks.

(v) Assume suitable data, if necessary.

SECTION I

1. (a) Draw and explain 80386 real mode programmers model. [10]

P.T.O.

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

(i) NA'

(ii) LOCK

(iii) ADS'

(iv) BS16'

Or

2. (a) Draw timing diagram of address pipelined and non-pipelined read machine cycle for 80386 and list activities carried out in sequence. [10]

(b) Explain memory segmentation of 80386 microprocessor in real mode. [8]

3. (a) Compare and contrast : [8]

(i) .COM & .EXE programs

(ii) MACRO & PROCEDURE

(b) Explain the significance of the following assembler directives : [8]

(i) PUBLIC

(ii) DW

(iii) .STACK

(iv) EVEN

Or

4. (a) Explain any *four* addressing modes of 80386 showing physical address generation with example. [8]
- (b) Draw and explain control word format for I/O and BSR mode of 8255. [8]
5. (a) How 80386 processor translates logical address into linear address ? [8]
- (b) What is descriptor cache and TLB ? When they are accessed by 80386 ? What is its use ? [8]

Or

6. (a) How can pages be protected in 80386 microprocessor ? Explain in detail. [8]
- (b) Write privilege checks performed by 80386 while accessing code or data with protection mechanism. List privileged and I/O sensitive instruction of 80386. [8]

SECTION II

7. (a) What is TSS and TSS descriptor ? Explain the function and reaction of 80386 when the task switch occurs. [10]
- (b) What is IDT & IDTR ? What is the difference between the trap gate descriptor and the interrupt gate descriptor ? [8]

Or

8. (a) Compare real mode and protected mode of 80386 with respect to segmentation, interrupts processing, privilege protection and register access. [12]
- (b) Explain the working of confirming code segment. [6]
9. (a) List features of 8051 and draw its internal architecture. [8]
- (b) List interrupt sources of 8051 with vector address and priority. Draw format of IE and IP registers with their significance. [8]

Or

10. (a) List addressing modes of 8051 with example. [8]
- (b) Compare with respect to use and operations carried out by 8051 : [8]
- (i) ACALL & LCALL
- (ii) SJMP & AJMP.
11. (a) Explain timer modes of 8051 with the help of TMOD and TCON registers. [8]
- (b) List the features of PIC microcontroller and write a comment on Harvard architecture of PIC microcontroller. [8]

Or

12. (a) State serial communication modes of 8051 with the help of SCON register and write steps for serial port programming. [8]
- (b) List the features of Texas MSP 430. [8]