[3862]-221

S.E. (IT) (First Semester) EXAMINATION, 2010
COMPUTER ORGANIZATION
(2008 COURSE)

Time : Three Hours   **Maximum Marks : 100**

N.B. :— (*i*)   Answer *three* questions from Section I and *three* questions 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*)   Explain Booth's Algorithm to multiply the following pair of two's signed complements numbers :   [10]

A = 110011 (Multiplicand)

B = 101100 (Multiplier).

    (*b*)   Explain floating point multiplication with the help of flow chart as well as algorithm.   [8]

Or

2.   (*a*)   Perform the following division using restoring division algorithm :   [8]

Dividend = 1001

Divisor = 0101.

(b) Explain IEEE floating point formats. [5]

(c) Explain the flow chart for floating point addition. [5]

3. (a) Draw and explain architecture of 8086. [8]

(b) Draw and explain read cycle of 8086 with a neat diagram. [8]

Or

4. (a) State the factors in the design of instruction format. Draw instruction format for intel processors and explain various fields in it. [8]

(b) State and explain any **4** addressing modes with examples for INTEL processors. [8]

5. (a) Write the control sequence for the following instruction : [8] MOV (R3), R1.

(b) Draw and explain micro-programmed control unit. [8]

Or

6. (a) Write a micro-program of micro-instructions for the following instruction : [8] ADD (R3), R1.

(b) Compare the following : [8]

(i) Hardwired and micro-programmed control unit

(ii) Horizontal and Vertical micro-Instruction format.

SECTION II

7. (a) Explain Set-Associative mapping technique with example. [8]

(b) A block Set-Associative mapped cache consists of 64 blocks divided into 4 block sets. The main memory contains 4096 blocks, each consisting of 128 words of 16-bits length : [10]

(i) How many bits are there in main memory ?

(ii) How many bits are there in TAG, BLOCK and WORD fields ?

Or

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

(i) EEPROM

(ii) RAID

(iii) SDRAM

(iv) DVD

(v) Magnetic Disk

(vi) Optical Disk.

9. Explain techniques for performing IO and compare them. [16]

Or

10. (a) Explain PCI bus with a neat diagram. [6]

(b) Explain functions and features of 8255 and 8251. [10]

11. (a) Compare closely coupled and loosely coupled Multiprocessor configurations. Explain loosely coupled multiprocessor configuration. [10]

(b) Explain instruction level pipelining with a diagram. [6]

Or

12. Write short notes on the following (any *four*) : [16]

(i) NUMA

(ii) UMA

(iii) RISC

(iv) CISC

(v) Cluster

(vi) Superscalar Architecture.