Nov-Dec-2010
S.E. [redacted] IT
Sem-I

Total No. of Questions—**12**] [Total No. of Printed Pages—**4**

[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.

P.T.O.

(*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.