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

Seat No.	

[4957]-211

S.E. (Information Technology) (I Sem.) EXAMINATION, 2016

COMPUTER ORGANIZATION

(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 IEEE standard single precision and double precision floating point formats and state various fields in it with their size and significance. [6]

(*b*) Draw flowchart of Booth's algorithm for signed multiplication and multiply the following signed 2's complement numbers. Justify your answer.

Multiplicand = 11011 Multiplier = 00101 [12]

P.T.O.

Or

2. (*a*) Compare Restoring and Non-Restoring division algorithm. Perform the division using non-restoring division algorithm. Dividend = 23, Divisor = 05 [10]

(*b*) Draw IAS (Von Neumann) Architecture and explain function of register in it. [8]

3. (*a*) Draw and explain programmer's model of 8086. [8]

(*b*) Explain with examples the following addressing modes of 8086 : [8]

(*i*) Register addressing mode

(*ii*) Immediate addressing mode

(*iii*) Register indirect

(*iv*) Base index with displacement.

Or

4. (*a*) Draw timing diagram for memory read cycle of 8086 and list operations in each T state. [8]

(*b*) Write a short note on minimum mode of 8086. [8]

5. (*a*) Draw and explain single bus organization of the CPU, showing all the registers and data paths. [8]

(*b*) Write a control sequence for the execution of instruction ADD (R3), R1. [8]

Or

6. (*a*) Explain the design of multiplier control unit using Delay Element method. [8]

(*b*) Compare :

(*i*) Horizontal and Vertical microinstruction representation.

(*ii*) Hardwired and micro-programmed control. [8]

SECTION II

7. (*a*) What is page fault ? Discuss page replacement strategies in detail. [8]

(*b*) Discuss direct mapping technique with respect to mapping function, address structure, merits and demerits. [10]

Or

8. (*a*) What is virtual memory ? Explain address translation mechanism for converting virtual address into physical address with neat diagram. [10]

(*b*) Write short notes on (any *two*) : [8]

(*i*) SDRAM

(*ii*) DVD

(*iii*) EEPROM

(*iv*) RAID

9. (*a*) List the techniques for performing I/O. Explain interrupt driven I/O in detail. [8]

(*b*) List the features of IC8255 and IC8251. [8]

Or

10. (*a*) Explain working principle of the following : [8]

(*i*) Laser Printer

(*ii*) Scanner.

(*b*) What is DMA ? Explain sigle transfer mode and block transfer mode of DMA data transfer. [8]

11. (*a*) Draw and explain closely coupled and loosely coupled multiprocessor configurations. [10]

(*b*) Give comparison between RISC and CISC. [6]

Or

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

(*i*) Superscalar Architecture

(*ii*) Instruction pipelining

(*iii*) CISC

(*iv*) RISC

(*v*) UMA

(*vi*) NUMA