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<b>Seat No.</b>	
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**[4657]-78**

**S.E. (Computer) (Second Semester)**

**EXAMINATION, 2014**

**COMPUTER ORGANIZATION**

**(2008 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 100**

**N.B. :—** (i) Answers to the two Sections should be written in separate answer-books.

(ii) Attempt *three* questions from each Section.

(iii) Neat diagrams must be drawn wherever necessary.

(iv) Figures to the right indicate full marks.

(v) Use of calculator is allowed.

(vi) Assume suitable data, if necessary.

**SECTION I**

1. (a) Draw the flowchart of Booth's algorithm for signed multiplication and multiply the following signed 2's complement nos. Justify your answer :

Multiplicand = 110011

Multiplier = 101100.

[10]

P.T.O.

- (b) Show the circuit arrangement for binary division and give the steps involved in Restoring Division. [8]

*Or*

2. (a) Represent the following numbers into single precision and double precision :

(i) 178.1875

(ii) -127.1075. [10]

- (b) Draw the structural of IAS computer and explain it. [8]

3. (a) Describe the following addressing modes along with suitable examples :

(i) Indirect

(ii) Register Indirect

(iii) Base with Index

(iv) Direct. [8]

- (b) Enlist the differences between sequential and combinational ALU. [8]

*Or*

4. (a) What is the difference between data hazard and instruction hazard ? Give an example of each. [8]

- (b) How is the instruction execution done in 4-stage pipeline ? [8]

5. (a) Draw and explain the microprogrammed control unit. [8]  
(b) Explain register organization of 8086. [8]

*Or*

6. (a) Write control sequence of unconditional branch instruction. [8]  
(b) Compare :  
(i) Hardwired and microprogrammed control unit  
(ii) Horizontal and vertical instruction format. [8]

## SECTION II

7. (a) Explain in brief the following :  
(i) DAT  
(ii) CDRM. [8]  
(b) What is virtual memory ? Explain role of TLB in virtual memory organization. [10]

*Or*

8. (a) What is cache memory ? Explain direct and associate mapping. [10]  
(b) What is RAID ? Explain in detail. [8]
9. (a) Explain the working principle of the following :  
(i) Video Display Devices  
(ii) Scanners. [8]  
(b) State and explain which signals are used to connect the printer to the processor. [8]

*Or*

- 10.** (a) What are the two addressing methods/modes of I/O devices ? Describe them. [8]
- (b) Explain in detail how operating system performs scheduling and memory management. [8]
- 11.** (a) Explain in detail superscalar architecture. [8]
- (b) With respect to SPARC processor, explain the following :
- (i) SPARC instruction set
- (ii) Instruction format. [8]

*Or*

- 12.** (a) Draw and explain architecture of a typical RISC processor. [8]
- (b) What is Cluster ? State the advantages of clustering. Explain cluster classification. [8]