

[Total No. of Questions: 12]

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UNIVERSITY OF PUNE

[4362]-219

S. E. (Comp. Engg.) (Sem II) Examination - 2013

Computer Organization (2008 Course)

[Time: 3 Hours]

[Max. Marks: 100]

*Instructions:*

- 1 *Answer any three questions from each section*
- 2 *Answers to the two sections should be written in separate answer-books.*
- 3 *Black figures to the right indicate full marks.*
- 4 *Neat diagrams must be drawn wherever necessary.*

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**SECTION -I**

Q.1	A	Explain instruction cycle with the help of state diagram.	08
	B	Draw and explain the flowchart for floating point subtraction.	08

**OR**

Q.2	A	Explain the IEEE standards for single precision and double precision floating point format. Represent the following using single precision format $(0.625)_{10}$	10
	B	Explain with the help of flowchart non restoring division algorithm.	06

Q. 3	A	Explain the design of ALU.	08
	B	Describe the following addressing modes along with suitable examples:	08

a. Direct

- b. Indirect
- c. Immediate
- d. Auto increment.

**OR**

Q. 4      A      Explain the following:      08

- a. Instruction cycle
- b. Instruction pipelining

B      Explain register organization of 8086.      08

Q. 5      A      Compare hardwired control Vs micro programmed control unit.      06

B      Explain in detail state table design method for hardwired control.      08

C      Explain brief : Emulation      04

**OR**

Q. 6      A      Draw the single bus organization of the CPU and write the control sequence for the unconditional branch instruction.      12

B      Explain in detail micro instruction sequencing organization.      06

**SECTION II**

Q. 7      A      Explain:      12

- i. Direct
- ii. Set associative cache mapping techniques along with its merit and demerits.

B      What are the different replacement algorithms? Explain LRU algorithm in detail.      06

**OR**

Q. 8      A      What is MESI protocol? Explain the meaning of each of the four states in the MESI protocol.      08

B      Explain briefly:      10

- i. RAID
- ii. Virtual memory

Q. 9	A	Explain synchronous and asynchronous bus for read operation with timing diagram.	10
	B	Compare programmed I/O & Interrupt driven I/O	06
<b>OR</b>			
Q. 10	A	Explain PCI bus with a diagram.	06
	B	Write short note on (any three):	10
		i. Keyboard	
		ii. Mouse	
		iii. Dot matrix Printer	
		iv. Laser Printer	
		v. USB Port	
Q. 11	A	Write short note on: (any four)	16
		i. Cluster	
		ii. NUMA	
		iii. UMA	
		iv. Superscalar Architecture	
		v. SMP	
		vi. Vector computation	
<b>OR</b>			
Q. 12	A	Explain closely coupled system with the help of diagram.	08
	B	What are the methods of bus arbitration? Explain polling method of bus arbitration with a diagram.	08