(Following Paper ID an	d Roll No.	to be fi	lled in	your	Ans	wer	Во	ok)
PAPER ID: 110401	Roll No.			П	\perp			

B.Tech.

(SEM. IV) THEORY EXAMINATION 2013-14

COMPUTER ORGANIZATION

Time: 3 Hours

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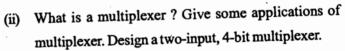
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Total Marks: 100

Note: - Attempt all questions.

- 1. Attempt any two parts of the following: (10×2=20)
 - (a) (i) What is Full adder? Draw the truth table for Full adder. Also realize the full adder using only NAND, NOR and NOT gates.



- (b) (i) Describe the basic format used to represent the floating-point numbers. Also define the concept of normalization and biasing with some example.
 - (ii) Describe carry-look ahead adder with block diagram.
- (c) (i) Discuss the Booth's algorithm for twos-complement number. Also illustrate it with some example.
 - (ii) Give the structure of a basic sequential arithmetic and logic unit.

[Turn Over

- Attempt any two parts of the following: $(10 \times 2 = 20)$
 - What is the difference between implied and immediate addressing modes? Explain with an example.
 - (ii) What are the requirements satisfied by an instruction set? Also explain various types of instructions.
 - Differentiate between complex instruction set computer and reduced instruction set computer.
 - (ii) Describe auto increment and auto decrement addressing modes with proper example.
 - Explain most common fields found in instruction formats. Also explain the three-address instruction and zero-address instruction formats with some example.
 - Write short note on relative addressing mode and indirect addressing mode.
- Attempt any two parts of the following: $(10 \times 2 = 20)$
 - Discuss the basic structure of micro program control (a) (i) unit.
 - Explain an accumulator based central processing unit organization with block diagram.
 - What do you understand by hardwired control? Give various methods to design hardwired control unit. Describe any one method used for designing of hardwired control unit.

- Write short notes on the following:
 - Parallelism in microinstructions
 - Various pipeline performance measures.
- Attempt any two parts of the following: $(10 \times 2 = 20)$
 - Discuss the conceptual organization of a multilevel (a) (i) memory system used in computers.
 - Give the main physical differences between the following memory technologies: SRAMs, flash memories and CD-ROM.
 - (b) What do you mean by cache memory? How does it affect the performance of the computer system? An eight-way set-associative cache is used in a computer in which the real memory size is 232 bytes. The line size is 16 bytes, and there are 210 lines per set. Calculate the cache size and tag length.
 - Write short notes on the following:
 - Block replacement policies
 - Address translation scheme for main memory.
- Attempt any two parts of the following: $(10 \times 2 = 20)$
 - Explain why the single shared bus is so widely used as an interconnection medium in both sequential and parallel computers. What are its main disavantages?

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- (ii) List various bus-arbitration methods. Discuss any one bus-arbitration method.
- (b) (i) Discuss the programmed IO method for controlling input output operations.
 - (ii) What is direct memory access? Explain. Give block diagram of circuitry required for direct memory access.
- (c) Write short notes on any two of the following:
 - (i) Concurrency Control
 - (ii) System Management
 - (iii) Interrupts.

