

**III B.Tech I Semester Supplementary Examinations, May 2005**  
**COMPUTER ARCHITECTURE**  
**( Common to Computer Science & Engineering and Information Technology)**

**Time: 3 hours**

**Max Marks: 70**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) What is the purpose of Memory Buffer Register(MBR)?  
(b) Draw the Instruction code Format for the register reference instruction.  
(c) Show the connection scheme of the basic computer to a common bus system and explain, with an example, how the data is exchanged between the registers and memory.
2. (a) What is a micro-operation?  
(b) Explain the cycles involved in fetching and executing any instruction.  
(c) Explain how serial transfer takes place from one register to another. Show necessary micro-operations required for the transfer.
3. (a) What is RISC?  
(b) How floating point numbers are represented inside the computer?  
(c) Explain the algorithm for addition and subtraction of two floating point numbers.
4. (a) State the sequence of micro-operation executed for STA.  
(b) Explain in detail about micro program sequencer with block diagram.  
(c) Give the organization of a typical hardwired control unit and discuss the functions performed by each unit.
5. (a) What is the concept behind the virtual memory? How will you translate virtual address into physical address?  
(b) Explain any one mapping technique used in cache memory organization comparing it with the other techniques.
6. (a) Compare and contrast magnetic drum and magnetic tape unit.  
(b) What is an Associative memory? What are its advantages? Can it be used as RAM? Explain.
7. (a) Draw a basic memory cell and explain how information is stored and retrieved from the cell.  
(b) Explain the concept of programmed I/O interrupts.
8. (a) With a neat diagram explain the role of an I/O interface.

(b) What is DMA? How do you perform memory operations with DMA?

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